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LUMBAR DISC HERNIATION

THE EFFECT OF TORQUE ON ITS CAUSATION AND CONSERVATIVE TREATMENT

A PRELIMINARY REPORT

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The surgical approach to the problem of low back pain is of comparatively recent origin and it is salutary, at this time when laminectomy is becoming an increasingly common operation, to consider a new approach to the conservative treatment of lumbar disc herniation.

Before the recognition of lumbar disc pathology as a common cause of low back pain, 'lumbago' was treated by a succession of methods in which empiricism was the common denominator. One of these methods still survives topically and its use in most cases is just as empirical to-day as it was when the pathology of disc herniations was unrecognized. The patient with low backache inevitably submits himself to some form of manipulative procedure either by a registered or unregistered practitioner.

A consensus of standard works on manipulation shows that the most commonly employed manoeuvre in the treatment of low back pain is the 'pelvic twist'.[1-4] This method is almost universally described and may be performed with or without anaesthesia.

Fig. 1. The Pelvic Twist. The most commonly employed manoeuvre in manipulation of the spine.

The patient lies supine upon a suitably low couch and one shoulder is fixed by the operator's hand while the homolateral hip is forcibly rotated across the mid-line of the body so that a twist is set up on the spine (Fig. 1). The operator moves to the opposite side of the patient and the same manoeuvre is performed using the contralateral hip and shoulder. This bilateral manipulation is without logical basis and is an empirical relic of the Dark Ages of 'lumbago' when, without critical diagnosis, manipulation was performed for its blunderbuss effect.

Most standard anatomy textbooks are emphatic that little or no rotation takes place in the lumbar region of the vertebral column.[5-7] These textbooks further point out that rotation is confined to the thoracic region. Brailsford,[5] however, following the preparation of a cine X-ray film showing the movements of the spine, states that there is a much greater degree of lumbar rotation than has previously been ascribed to this region. X-ray films taken by the author appear to confirm this statement. Blair [6] states that some pure rotation of the lumbar spine does take place, particularly in the lower part of the lumbar vertebrae owing to the laxity of the synovial joints.

A series of X-rays was taken to demonstrate the amount of rotation possible in the lumbar vertebral joints. Two are published in this preliminary communication. Fig. 2B represents the A-P view of a healthy male of 19 years. The pelvis was fixed and the lumbar region extended; the shoulders were then passively rotated on the pelvis. There is some slight latero-flexion, but it takes place high in the lumbar spine. It will be seen that rotation increases progressively from L 4, 3, 2 up to the thoracic vertebrae.

A stationary spine without any attempt at movement is included for comparison (Fig. 2A).

Fig. 3 represents the A-P view of the lumbar spine of a female dancer of 16 years. There is considerably more rotation than in the previous film. There is no latero-flexion. It was taken under the same conditions as Fig. 2, but latero-flexion was avoided by passively controlling the subject's movement.

If free rotation takes place in the thoracic spine alone, then it must be confined to the lower thoracic spine.

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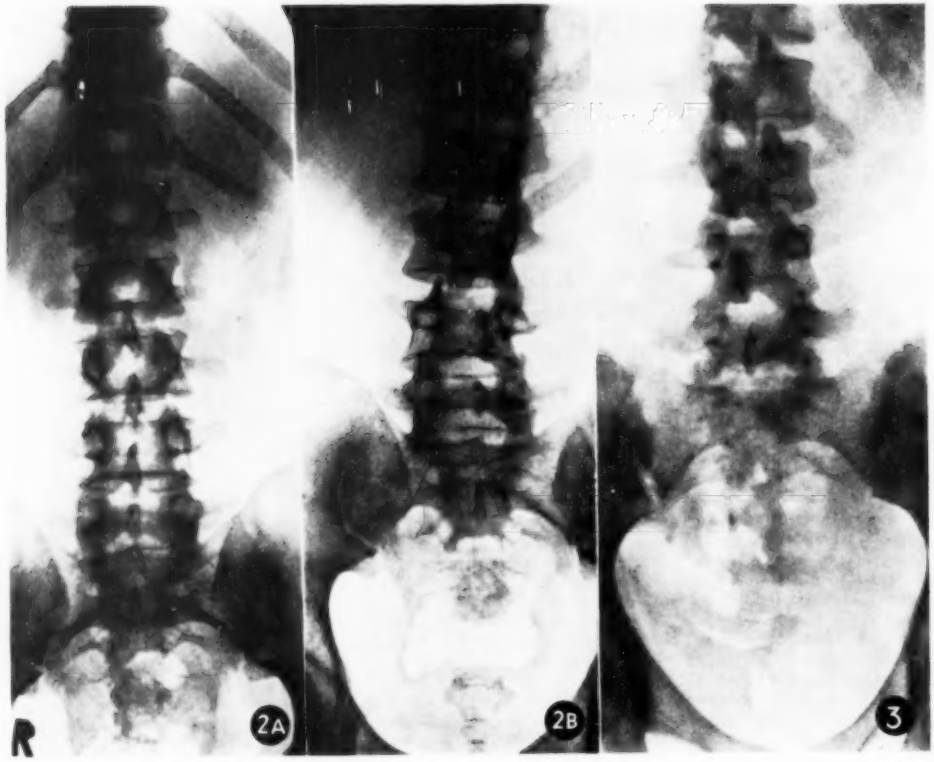


Fig. 2. (a) Resting spine. (b) Lumbar vertebrae showing rotation.
Fig. 3. Lumbar vertebrae showing rotation (dancer, *aet.* 16). A greater degree of rotation is demonstrated here.

since the upper thoracic vertebrae are effectively splinted by the seven true ribs which, with their direct attachment to the sternum, must limit rotation to some degree.[10]

It is accepted that the costo-transverse and costo-vertebral joint excursion is mainly concerned with respiratory movements.

There exists, therefore, a group of 10 vertebrae which link a relatively fixed portion of the spine (the upper seven thoracic vertebrae) to an absolutely fixed foundation, the sacrum. It is through this link of 10 vertebrae that the torsional forces of rotation must be distributed, the main burden of which is felt in the lower lumbar spine where its firm anchorage to the sacrum is encountered. The axis of rotation of the lumbar spine is through the bodies of the vertebrae and it is postulated, therefore, that the intervertebral discs suffer distortion and sustain a great measure of the torsional strain (hereafter referred to as torque).

It is interesting to conjecture, at this stage, on the functional anatomy of the discs themselves. The inferior surface of one vertebral body is united to the superior surface of the vertebral body below it by the fibro-cartilaginous disc. The peripheral part of this structure is called the annulus fibrosus and is composed of dense fibro-cartilage. The fibres run obliquely between the two vertebrae and are arranged in concentric rings, the fibres in successive rings having opposite obliquities.[11]

The central part of the disc is called the nucleus pulposus and is contained in an envelope of fibro-cartilage which blends with the inner layers of the annulus. It is composed of mucoid material interlaced with fine fibres of fibro-cartilage. On each surface of the disc, above and below, there is a thin layer of hyaline cartilage. The nucleus is under tension and bulges when the annulus is incised. It is believed that the tension is due to pressure of the elastic fibres of the annulus and not to the expansile force within the nucleus.[12] The disc distributes and transmits forces down the spine and allows segment mobility.

It would seem from the mechanical design of the disc

that it is well able to adapt itself to the torque that is thrust upon it. As the force of the torque mounts, the concentric laminae with their fibres running in opposite obliquities would act as a circular spring which winds and unwinds as the torque varies in power and direction. It seems unlikely that the rotational element in thoraco-lumbar vertebrae, in view of the enormous forces that it has to sustain, could cease abruptly at an artificially delimited portion of the spine, but rather that the mobile vertebral column would distribute its forces in relation to its entire architecture. Moreover, the 'shear' force acting on the vertebral body tends to rotate the vertebra causing a compression moment of this on the next lower disc.[13]

It is not the purpose of this paper to emphasize the degree of rotation that takes place in the lumbar spine, but rather to accentuate the torque that is consequent, and which the author believes is the most important factor, in the production of disc herniation. If these mechanics of injury are accepted then increasing the traumatic torque (i.e., the torsional force that has produced injury) will exaggerate pain and disability, the undermentioned clinical signs become understandable and also the principle may be applied in treatment.

Where the diagnosis of lumbar disc herniation has been made, the following two clinical signs should be elicited:

1. The patient lies supine and the manoeuvre described earlier in this paper as the 'pelvic twist' is performed gently, but with as full a range as the patient's pain permits (Fig. 1).

It will be found that rotation of the pelvis with the homolateral shoulder fixed is invariably more painful to one side than to the other. The direction of the movement causing pain is noted, e.g. right hip rotated to left with right shoulder fixed to the couch, more painful than *vice versa*.

2. The patient is now put into the prone position and asked to relax as much as possible. Strong lateral pressure is applied by the thumb at right angles to the lumbar spinous processes on one side, commencing at L 1 and working caudally. As the suspected level of herniation is approached, it will be found that intense discomfort and an increase in root pain (if present) will take place.

The opposite side is now examined in an identical manner. It will be found that there is little or no intensification of the local or referred pain. The force directed at the sides of the spinous processes should be of a magnitude such as the examiner would use if he was attempting to elicit movement of the spinous process in the direction of the applied force.

If the two signs are co-ordinated it will be found that:

1. If the right hip rotated to the left with the right shoulder fixed produces pain and *vice versa* is painless then:

2. Pressure along the left sides of the spinous processes at the level of the herniation will produce pain, the spinous process immediately above the herniated disc being the most painful.

It is important that this pain be differentiated from paraspinal tenderness. This is due to pressure on the bellies of the erectores spinae which are in reflex spasm following disc herniation. Pain produced by pressure on these muscles is of a more diffuse character and root pain is not increased.

It is postulated that pressure in the manner described on the sides of the spinous processes, produces a moment of torque upon the vertebra which is in the same direction as the torque produced by the 'pelvic twist'. Both these torsional forces are known as traumatic torque. Torsional force in the opposite direction to the above, is known as 'counter torque' and is utilized in treatment.

The author wishes to make it clear that he does not hold that the torsional stress is the only factor in the production of lumbar disc herniation. He is well aware of the other stresses that exist, but he regards them as being ancillary to the traumatic torque. It is intended to publish an analysis of the total forces acting on the lumbar spine in the more comprehensive paper that will follow this preliminary report.

TORQUE IN TREATMENT

An important preliminary to treatment is the assessment of the direction of traumatic torque, which should be done in the manner described above. A broad padded canvas sling is placed under the patient's chest and a similar one under the knees. The patient is then suspended some two feet above the plinth by means of a Guthrie Smith Suspension Apparatus.

The position of the patient is similar to that which he would occupy if he was having a spinal plaster put on for a fracture of the dorsal vertebrae. In this position the lumbar spine is in extension and consequently, when counter torque is applied, rotation and torsional strain will be effective in this part of the spine. The patient is now placed in counter torque, e.g. if in Sign (1)—right hip rotated to left with right shoulder fixed is painful; and if in Sign (2)—pressure on the left side of the spinous processes at the suspected level of the disc is more painful than pressure at the same level on the opposite side. Then the patient is slung in counter torque as follows:—

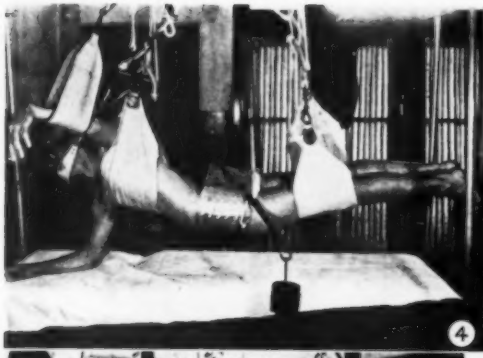
With the patient in prone suspension, the left shoulder is supported so that it points upwards and traction is applied to the left hip so that it is rotated downwards (Fig. 4).

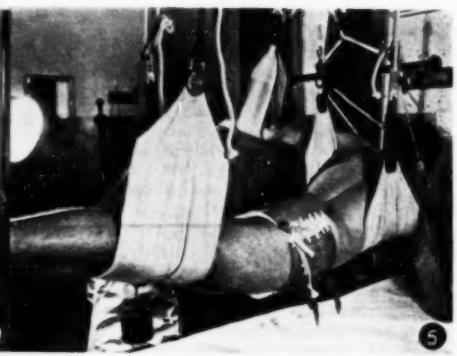
A special belt has been designed for this latter purpose. It is applied just above the level of the greater trochanters and buckles above the pubis. The body of the belt encloses a sheet of steel so devised that it allows a rigid rod to slide obliquely from one side to the other; at the free end of this rod, a weight sufficient to produce rotation of the pelvis is attached (Figs. 4-6). The patient's head is contained in a sling and the left arm is similarly supported. The shoulder and knee slings are now adjusted so that counter torque produces its maximum effect, e.g. left shoulder stay raised, right shoulder stay lowered; left knee stay lowered, right knee stay raised.

An ultra-short wave diathermy drum is applied to the lumbar spine in order to diminish muscle spasm, and the patient is left suspended for 20 minutes.

After completion of treatment the patient should be lowered to the plinth with the utmost gentleness.

This form of therapy may be used for both acute and chronic lumbar disc herniations. Acute disc herniations are treated twice daily until there is a remission of symptoms and thereafter daily until symptom free. Chronic disc herniations are treated once daily until symptom free. Upon cessation of treatment, counter





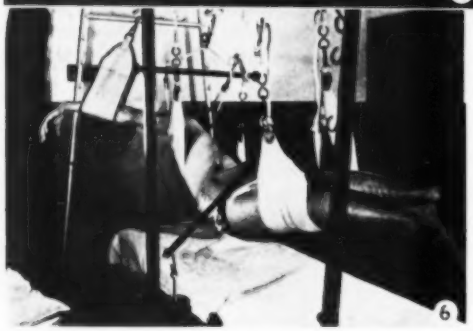


Fig. 4. Counter Torque Suspension. Note the opposite planes of the thorax and pelvis. Torsion on the lumbar spine must be achieved if treatment is to be effective.
Fig. 5. Counter Torque Suspension. Oblique view.
Fig. 6. Counter Torque Suspension. Oblique view.

torque and lumbar extension exercises are advised and the patient is fitted with a short Goldthwaite brace. This is worn for a period of two months.

It will be noted that the purpose of this type of suspension is to produce the resultant of two forces upon the lumbar spine. These are:

	Engineering Terminology
1. An extension force	Tension
2. A rotational force	Torque

It has been found that counter torque suspension compares very favourably with other modes of conservative therapy. Its success will be evaluated in a more comprehensive paper to be published. It should be added that in no case have any patients' symptoms been increased.

SUMMARY

1. The effect of torque on the causation of lumbar disc herniations is discussed.

2. Attention is drawn to the range of rotation that exists in the lumbar spine.

3. Traumatic torque is elucidated and two signs for the recognition of its direction are described.

4. A method of conservative and ambulant treatment known as 'counter torque suspension' is described.

A traction table, embodying these principles, is now being constructed.

This work has been done in the Department of Orthopaedic Research of the University of Cape Town and I wish to thank Mr. Arthur J. Helfet, M.Ch. (Orth.), F.R.C.S. (Eng.) of that Department and also Dr. Ronald Singer of the Department of Anatomy for their collaboration.

A more comprehensive paper on this subject will be published at a later date in association with Mr. Helfet and Dr. Singer.

I wish to thank Drs. H. and B. Hirschon for the many X-rays taken by them during the course of this work, Dr. A. Reichlin for his encouragement and advice and Mr. G. McManus of the Department of Surgery at Groote Schuur Hospital for the photographs.

The torque belt was made to my design by A. H. Hodges & Co. (Pty.) Ltd., 164 Sir Lowry Road, Cape Town.

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South African Medical Journal

Suid-Afrikaanse Tydskrif vir Geneeskunde

VAN DIE REDAKSIE

SPASTIESE VERLAMMING IN SUID-AFRIKA

DIE BEHOEFTE AAN 'N LANDWYE GEDRAGSLYN

Ons het op 10 November 1951 'n samespreking oor spastiese verlamming gepubliseer. Dit is georganiseer deur die Noord-Transvaalse Tak van die Mediese Vereniging van Suid-Afrika en is gehou in die Pretoriase Skool vir Spasties Verlamdes. Belangstelling in hierdie probleme in Suid-Afrika is van taamlik resente aard, terwyl die Pretoriase skool een van die jongstes op hierdie gebied is. Daar bestaan beperkte geleenthede in ander dele van die land vir die behandeling van sulke kinders, soos, b.v. te Durban, Pietermaritzburg, Meerhof (Haartebeestpoort-Dam), Kimberley, Johannesburg en Pretoria. Die skole in Pretoria en Johannesburg (*Forest Town School for Spastics*) is dagskole, wat alleenlik gevalle van spastiese verlamming opneem. Die ander plekke neem maar beperkte getalle van sulke kinders op, as deel van hul bedrywighede ten behoewe van liggaamlik gebreklike kinders. Deels staan die werk onder beskerming van die Nasionale Raad vir Kreupelsorg, deels is die Provinsies daarvoor verantwoordelik. Die skool te Kimberley staan onder beheer van die Unie se Departement van Onderwys, terwyl dié te Johannesburg deur 'n liggaam van onafhanklike vrywilligers behartig word.

Sonder om die ondernemingsgees en entoesiasme te probeer verminder van die moedige en welmenende lede van die publiek, wat reeds soveel gedoen het om hierdie ongelukkiges 'n lewensbestaan te besorg, is ons tog besig om 'n punt te bereik waar dit nodig is dat die bydraes van beide plaaslike sowel as publieke owerhede gekoördineer en behoorlik beplan moet word, om wedywering en oorvleueling van die werksaamhede te vermy, sodat hulle so ekonomies en doeltreffend as moontlik voortgesit kan word.

Volgens berekening is daar 3,000 van hierdie ongelukkige kinders in die Unie en die Nasionale Raad vir Kreupelsorg in Suid-Afrika het onlangs besluit, om 'n vraelys om te stuur met die doel om die juiste omvang van spastiese verlamming hier te lande vas te stel. Die vraagstuk is heel duidlik 'n ernstige en wydvertakte propaganda sou meer as geregverdig wees om belangstelling op te wek vir die behoeftes van hierdie ongelukkige kinders.

Op 'n nasionale grondslag kon dit oorweeg word om spesiale klinieke te stig in al die groot sentra van die Unie en hulle te beman deur genoegsaam onderlegde personeel. Hierdie klinieke kon dan sowel raadgewend as geneeskundig optree. Waarnemingsklinieke, wat in die kleinere sentra van die Unie geleë is, kon ingeskakel word by die spesiale klinieke. Hierheen kon pasiente dan verwys word vir die nodige advies en beoordeling, waarna hul dan oorgeplaas kon word na die grotere middepunte vir gespesialiseerde behandeling. Elke kleinere kliniek behoort dus in

EDITORIAL

CEREBRAL PALSY IN SOUTH AFRICA

THE NEED FOR A NATIONAL POLICY

On 10 November 1951 we published a symposium on cerebral palsy arranged by the Northern Transvaal Branch of the Medical Association of South Africa at the Pretoria School for Cerebral Palsy. Interest in these problems in South Africa is fairly recent and the Pretoria School is one of the youngest in this field. There are limited facilities for treating these children in other parts of the country, e.g. Durban, Pietermaritzburg, Meerhof (Haartebeestpoort Dam), Kimberley, Johannesburg and Pretoria. The schools in Pretoria and Johannesburg (Forest Town School for Spastics) are day schools with admission restricted to cerebral palsy cases. The other centres take limited numbers of these children as part of their activities on behalf of the handicapped children. Some of this work is under the auspices of the National Council for the Care of Cripples. Some is the responsibility of the Provinces. The school at Kimberley is under the control of the Union Department of Education and the one in Johannesburg is run by a voluntary, independent body.

While there should be no attempt to diminish the initiative and enthusiasm of the public-spirited citizens who have done so much to rehabilitate these unfortunate people, we are obviously approaching a stage when the contributions from local or public authorities need to be co-ordinated and planned properly to avoid competition for and duplication of services so that these may be provided as economically and efficiently as possible.

It has been estimated that there are about 3,000 of these unfortunate children in the Union and the National Council for the Care of Cripples in South Africa has recently arranged to issue a questionnaire with the object of discovering the precise incidence of cerebral palsy in this country. The problem, therefore, is obviously a serious one and widespread propaganda to arouse interest in these unfortunate children would be more than justified.

A national policy could consider the establishment of special clinics in all the large centres of the Union, staffed with adequately trained personnel. These clinics could be both advisory and therapeutic. Integrated with them could be Ascertainment Clinics located in the smaller centres of the Union, where patients might be referred for advice and assessment and from where they could be transferred to the larger centres for specialized treatment. Each smaller clinic should, therefore, be linked to a parent centre and these peripherally distributed clinics would have

verbinding te staan met 'n hoofsentrum, terwyl sulke omliggende klinieke dan die belangrike taak sou hê van toesig te hou oor pasiente, nadat hul behandel is in die grotere middepunte.

So 'n nasionale beleid kon ook skikkings tref om werk te vind en leiding te gee vir die indiensneming, onder beskermde toestande, van 'n liggamlik belemmerde pasient. So 'n optrede kon dan ingeskakel word by 'n veel groter skema wat werk voorsien, onder beskermde toestande, aan ander kreupeles of persone met 'n ernstige agterstand. Na alle waarskynlikheid sal die industrie ook meewerk om 'n sekere persentasie van sulke persone, wat genoegsaam herstel het om bruikbaar te wees vir die samelewing as werknemers op te neem.

Weliswaar daar sal 'n groot aantal persone met spastiese verlamming oorbly, wat ongeskik sal bly vir opleiding in enige soort van werk; hulle sal ongetwyfeld in plekke moet beland waar verstandelike veragterdes versorg word. Sulke kinders egter sal alreeds die meer eenvoudige dingetjies van die lewe geleer het, soos b.v. om hulself te kleed en andersins te behelp, waardeur die las verbonde aan hul versorging verlig word.

Die spesiale oefensentra in so 'n volksplan sou ook kon dien as oefenskole vir fisiese geneeskundiges, waaruit daar dan 'n standhoudende toevoer van geoefende personeel sou verkry word, wat bekwaam sou wees om mee te doen aan die spanwerk wat so 'n program vereis.

Die hele beskaafde wêreld trek hul die lot aan van hierdie liggaamlik belemmerde kinders. Hierdie beweging het eerste by ouers ontstaan en die welslae daarvan hang grootliks af van hul aktiwiteite en dit is belangrik om hul medewerking te verkry, indien daar sukses sal rus op 'n meer omvattende beleid. Dit is duidelik dat ons in Suid-Afrika werkers het wat wondere verrig het, ten spyte daarvan dat hul gebrek het aan geld, behoorlik onderlegde personeel, geskikte geboue en toerusting. Gevolglik het ouers (wat radeloos om hulp gesoek het) in sekere dele van die land 'n plek gevind, waar hul kinders nie slegs behandeling kon kry nie, maar ook opvoeding.

Die tyd is dus daar om alle moontlike hulp te verleen op 'n landwye basis, om die hoof te bied aan 'n vraagstuk wat nog hanteerbaar is, wat sy omvang betref, maar wat goedskiks nie langer oorgelaat kan word aan die ongeorganiseerde entoesiasme van klein groepies werkers dwarsdeur die Unie nie.

the important task of supervising the patients after their treatment in the larger centres.

Such a national policy could also arrange to obtain and advise sheltered employment for the handicapped patient, an activity which could be integrated with a much larger scheme of providing sheltered employment for other cripples or seriously handicapped persons. There is every likelihood that industry will co-operate in absorbing, as a certain percentage of employees, these handicapped persons who have been restored to a useful place in society.

It is true that a large group of spastic persons not suitable for training in any form of employment may remain; and these will undoubtedly end up in centres caring for the mentally deficient. Such children, however, will have been taught the simpler activities of life, e.g. to dress themselves and to look after themselves, thus easing the burden of their care.

The special training centres in such a national scheme would also act as a school for training physiotherapists, so that there would be a constant supply of properly trained personnel capable of co-operating in the team work required in this programme.

Concern about these handicapped children is general throughout the civilized world. A movement initiated primarily by parents, its success depends very considerably on the activities of the parents and it is important to enlist their co-operation if the success of a more comprehensive scheme is to be ensured. It is clear that in South Africa we have workers who have achieved miracles although they are short of money, of properly trained staff, of suitable premises and of equipment. The result is that in parts of the country, parents (desperate and anxious for help) have found a place where their children could not only be treated but also educated.

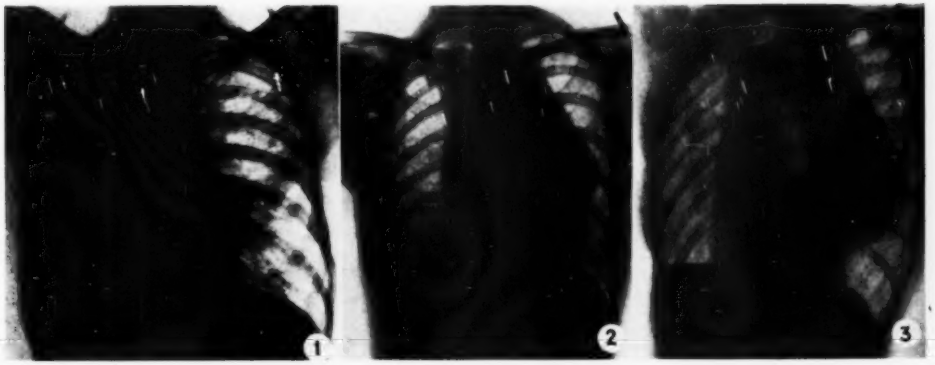
The time is ripe, therefore, to give every assistance possible, on a national scale, to deal with a problem which is still manageable in its proportions and which it is no longer proper to leave to the unorganized enthusiasm of small groups scattered throughout the Union.

THE AMERICAN COLLEGE OF CHEST PHYSICIANS: SOUTH AFRICAN CHAPTER

CASES SHOWN AT THE TWENTY-FIFTH MEETING

A. *Dr. H. Ackermann* showed the X-rays of a Coloured male patient aged 58. Towards the end of 1949 he developed a severe cough and was seen at a chest clinic, but could not be admitted to hospital until July 1950. He was then extremely ill, with signs of a massive effusion on the right side. The heart, however, was displaced to the right. The X-rays showed a complete black-out of the right lung field, with displacement of the heart and trachea to the right (Fig. 1).

He remained very ill and dyspnoeic in hospital, coughing and producing large amounts of purulent sputum. Two attempts at aspiration of the right chest were made and a heavily blood-stained fluid was withdrawn. This contained no organisms and no malignant cells were



found. His sputum was also repeatedly negative for tubercle bacilli and no malignant cells were found. Blood counts showed a leucocytosis of only 12,000 per c.mm., with a normal differential count, and his red cells were 3.5 million per c.mm.

He died about a month after admission and an autopsy showed that the right lung contained a massive growth which was breaking down and cavitating.

Dr. Marais indicated that the X-rays were those of a carcinoma of the lung, particularly because of the atelectasis shown by the displacement of the heart and mediastinum towards the side of the effusion. Dr. Ackermann agreed with this, but said that the patient had been too ill for anything to be done to establish the diagnosis or to be treated for carcinoma.

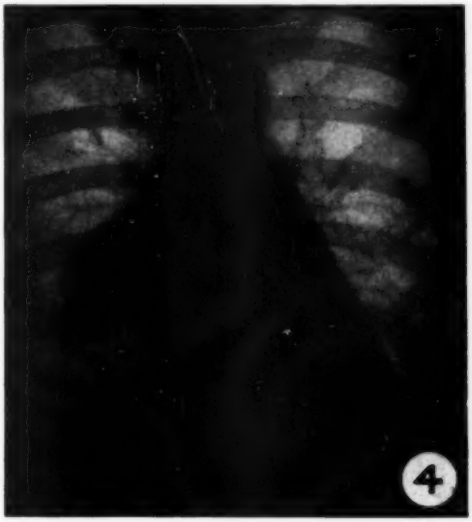
B. *Dr. Jacobson* showed the X-rays of a European woman aged 50. She had been well until 3 months before admission when she lost weight and appetite, became constipated and short of breath on exertion. There was a previous history of high blood pressure but when seen, her blood pressure was only 120/70 mm. Hg. The electrocardiogram was negative, and her peripheral blood vessels were in good condition. Clinical examination showed a pulsating mass in the epigastrium, but examination of the chest showed nothing abnormal. She was referred for an X-ray of the gastro-intestinal system, and routine screening of the chest then showed gross enlargement of the mediastinum. X-rays of the chest showed that there was a grossly dilated and tortuous aorta, all parts of the aorta in the thorax being involved. The mass in the epigastrium was almost certainly part of the aortic dilation. There was no erosion of the ribs or spine, and no arteriosclerotic plaques were seen (Figs. 2 and 3).

Dr. Jacobson stated that on further clinical examination he found that the first aortic sound was roughened, and there probably was a systolic thrill in the situation. The blood Wassermann result was not yet available.

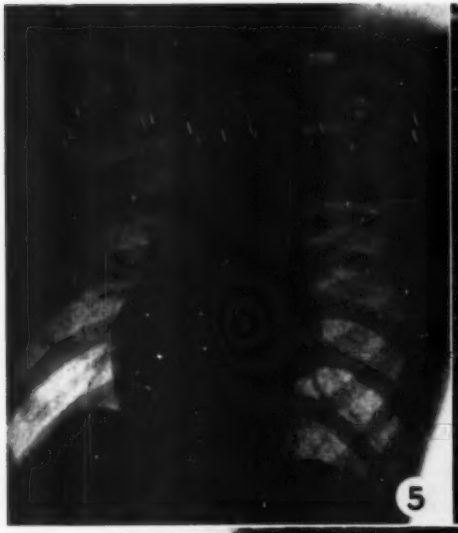
He posed the question whether this dilation could be due to arteriosclerosis or to a syphilitic lesion. He emphasized that screening showed good expansile pulsation in all sections of this dilated aorta.

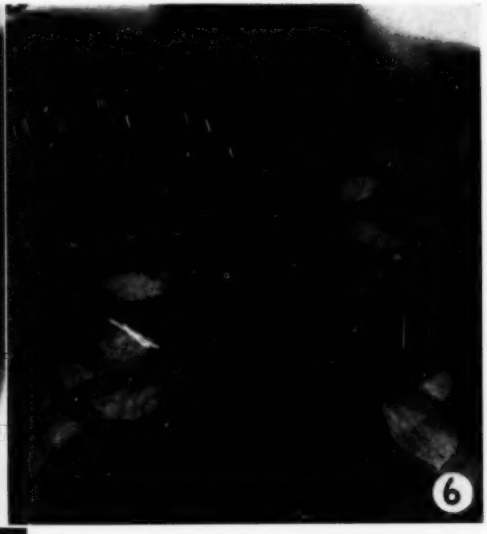
Dr. W. L. Phillips suggested that the X-rays indicated a dissecting aneurism of the aorta, but Dr. Jacobson and Dr. Schrire did not agree with this, because of its great length and tortuousity. Dr. Landau said that the appearances suggested syphilis, but the extent of the affected aorta was too great. Dr. Jacobson also pointed out that the lungs had surprisingly escaped being affected and that there was no atelectasis.

C. *Dr. H. O. Hofmeyr.* Dr. H. Muller presented a case for Dr. Hofmeyr. This was of a woman aged 57,



who had no symptoms relative to the chest or the central nervous system, and she had been sent for a general examination. X-rays of chest showed that there was a





rounded, smooth, sharply defined shadow in the right lung field, immediately adjacent to the spine at about the level of D.8 or D.9 (Fig. 4). A number of X-rays had been taken which showed that this mass was situated posteriorly and that it overlay the intervertebral foramen of the eighth or ninth intercostal nerves on the right side. In one view it appeared that there was some destruction of the upper surface of the lower rib, but no definite changes in the intervertebral foramen could be seen. Dr. Jordaan stated that the most probable diagnosis was neurofibroma. Dr. Brauer suggested that it could be a primary pleural endothelioma, although this tumour was a very uncommon one. Dr. Schrire agreed that neurofibroma was a probable diagnosis, but felt that a Casoni reaction to exclude hydatid disease should be done, and further, that one could not be quite certain that this was not a carcinoma of the lung. This final statement was generally accepted. Dr. H. Muller suggested that it would be wise to do an artificial pneumothorax, as this would show whether the tumour was in the lung substance or attached to the chest wall.

The general feeling of the meeting was that it probably was a neurofibroma, and that it might be one of the dumb-bell tumours situated partly in the intervertebral foramen.

D. *Dr. W. L. Phillips* showed the following cases:

1. A male aged 38, who had no symptoms, but on a routine X-ray of the chest, a round, smooth, sharply demarcated shadow in the left lung adjacent to the vertebral column was shown. It was about 2 inches across. Other views showed that it was situated posteriorly and there was some widening of the fifth intercostal space (Fig. 5).

The differential diagnosis here was the same as for Dr. Hofmeyr's case and further investigations would have to be done before the diagnosis could be established. It

was agreed, however, that thoracotomy was necessary in both cases.

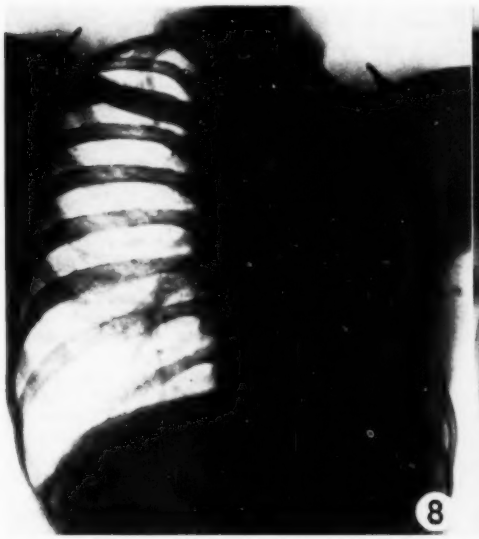
2. A man aged 53 had complained of general malaise and backache for 2 or 3 months. In the routine examination microscopy of his urine was said to show a few red cells, but the examination otherwise was negative. The X-ray of the chest, however, revealed a large smooth clearly demarcated shadow about 3 inches across situated in the lower left lung field (Figs. 6 and 7).

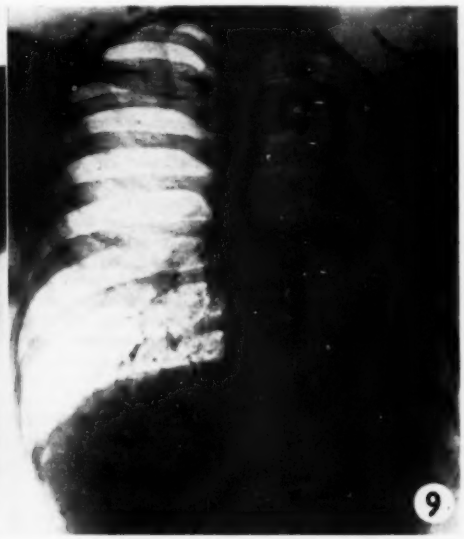
In hospital, repeated urine examination failed to show any excess of red cells. A pyelogram also was completely normal.

E. *Dr. M. Nellen* showed the case of a male aged 32, who regarded himself as being completely well; but on routine examination flattening of the left chest with displacement of the heart to the left side was found. There was no cough, sputum, clubbing or other indications of lung disease.

X-rays of his chest showed crowding of the ribs on the left side with gross displacement of the heart and mediastinum to the left, and elevation of the diaphragm. The lung field on the left showed a complete black-out (Fig. 8).

Bronchography demonstrated marked left-sided bron-





Dr. Phillips had performed a thoracotomy and found a large encapsulated cystic tumour, darkly pigmented and with a large vascular supply, while towards the hilum a similar smaller mass was discovered. This small mass was removed and was found to contain a soft, black material; a frozen section of this indicated that it probably was a malignant melanoma. A lobectomy had been done to remove this tumour and other growths, probably in glands, were discovered in the mediastinum.

Careful examination of the whole body failed to show the primary tumour; but the patient later volunteered that 3 years ago he had a small pigmented mole removed from the left cheek because it was being frequently damaged in shaving. It was likely that this was the primary tumour and that the tumours in the chest were secondary to it.

Drs. H. Muller and Landau pointed out that this tumour is not a sarcoma but a form of carcinoma.

chiectasis with extensive herniation of the right lung across to the left (Fig. 9). In the lateral view particularly, it is obvious that the left lung was collapsed posteriorly against the thoracic wall, and that the anterior part of the left chest was occupied by the right lung. Dr. Nellen asked whether it could be decided whether this was a congenital atelectasis or agenesis, or whether the bronchiectasis was acquired. Dr. Phillips thought that it was acquired bronchiectasis which was draining very well so that there were no symptoms. He felt strongly that a left pneumonectomy would have to be done and probably a thoracoplasty to prevent over-distension and emphysema of the right lung.

There was a general agreement on the question of the pneumonectomy; but it was also felt that this condition was of long standing, possibly even congenital, and that over-distension of the right lung was not a real danger.

RIFT VALLEY FEVER IN SOUTH AFRICA

2. THE OCCURRENCE OF HUMAN CASES IN THE ORANGE FREE STATE, THE NORTH-WESTERN CAPE PROVINCE, THE WESTERN AND SOUTHERN TRANSVAAL

A. EPIDEMIOLOGICAL AND CLINICAL FINDINGS

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In the autumn of 1951 there was a severe and widespread epidemic of a disease in sheep and cattle in the Western Free State, the Southern and South-Western Transvaal and the adjoining districts of the North-Western Cape Province. This epidemic first became apparent in January in the Koffiefontein district South-West of Bloemfontein. From there it spread and involved all the districts of the Western Free State and the adjoining districts of the North-Western Cape Province and the South-Western and Southern districts of the Transvaal, extending as far East as the Standerton district. The regions affected are notable for the large numbers of water pans, which this year, because of good rains, were full or nearly full of water.

This epidemic has been a major catastrophe to many farmers. It was associated with a high mortality amongst newborn lambs and pregnant ewes nearly all of which aborted. Several farmers lost all their expected lamb 'crop'. The death rate amongst infected hamels was much lower. The mortality amongst adult sheep was approximately 60%. Cattle were not as badly affected as sheep, but losses were considerable as the mortality rate in some herds was estimated to be about 20%. Most cows in calf aborted. Several farmers reported that the wild springbuck and blesbuck on their farms had also aborted. It was established by the staff of the Onderstepoort Laboratories that this disease was Rift Valley Fever.[1]

At the same time as the occurrence of this epidemic amongst sheep and cattle several cases of an acute febrile illness occurred in human beings. At first it was thought that they had influenza. Later it became apparent that there was an association with the disease in sheep and cattle. Inquiry revealed that all the veterinary surgeons in the Orange Free State and the Western Transvaal, who had done post-mortem examinations on infected sheep, had contracted the illness.

Altogether records of over 50 cases of a similar illness affecting farmers and their Native labourers were collected. There were probably many more cases which were not reported. An analysis of these case records revealed a fairly typical picture. All the patients had come into close contact with sick sheep or cattle or with meat. Most of them had cut open and handled the viscera of sheep. It was clear that only those individuals having this intimate contact with sheep or cattle contracted the disease. The infection did not spread from patients to individuals coming into contact with them. However, although the majority escaped, several housewives contracted the infection presumably from handling infected mutton. There also may have been a few cases in which mosquito transmission of the infection occurred.

The incubation period was difficult to determine in most cases because of repeated exposures to infected tissues, but in several cases where only one such exposure had occurred the incubation period was accurately determined as being from four to six days. The onset of the illness was sudden. The patient experienced chills or actual rigors, then developed severe headache, backache, and painful stiffness of the limbs, and fever. The temperature was often over 104°F when taken the day after onset. On examination it was noted that the face was flushed, the eyes were congested and the conjunctiva injected, the tongue was coated and the throat somewhat reddened, but symptoms and signs of coryza were absent. The chest was usually clear and the heart rate not markedly increased. The abdomen was not distended, but some patients had slight discomfort and tenderness over the liver. The spleen was not palpable and not tender. Most patients felt nauseated and some had vomited once of twice. Nearly all had constipation. Most patients had insomnia and several were delirious. The fever lasted one to four days when the temperature returned to normal. However, in a considerable proportion of the cases after one day's remission there was a recrudescence of fever lasting one to three days, and the patient had a return of the symptoms he complained of in the first bout, with marked sweating and a feeling of great prostration.

In most patients convalescence was rapid, but many complained of malaise and weakness lasting for several weeks.

Complications. As mentioned in the preceding paper, one of the Johannesburg patients developed coronary thrombosis a week after the acute illness. He was of an age prone to this ailment and it is not clear whether to blame Rift Valley fever for this serious condition. However, it is relevant to recall that in the only fatal laboratory infection on record the patient died of thrombophlebitis. None of the Free State patients were known to have developed this complication. There were no deaths amongst human beings directly attributable to this disease.

Two of the patients within a week of the acute illness developed affections of vision. These varied from blurring to scotoma and almost complete blindness. In one patient a retinal haemorrhage was responsible. In the other reti-

nitis and choroido-retinitis was found, with a yellowish-white exudate. In two cases the defects of vision still persist two months later and the ultimate prognosis is not known. Then several similar cases were brought to our attention by medical practitioners and ophthalmologists. These patients had developed disturbances of vision soon after an acute illness, which at the time had been regarded as influenza. Complement fixation tests were then carried out. These gave positive results and so a retrospective diagnosis of the acute illness as Rift Valley fever was made. Thus far we have records of 10 such cases in which a choroido-retinitis with a yellowish-white exudate in the retina has been the characteristic finding. This complication has not been described in detail in previous outbreaks of Rift Valley fever and merits a detailed description of the cases. This will be given in a separate paper. In the meantime, the possibility of Rift Valley fever should be considered in all cases developing defective vision soon after an acute febrile illness, and blood should be sent to this Institute for the complement fixation tests to confirm or exclude the diagnosis of Rift Valley fever.

Treatment. Most of the patients were given diaphoretics and sulphadiazine, and a few in addition received Penicillin. As Rift Valley fever is a short self-limited disease it cannot be said whether the progress of the patient was influenced by this treatment. As far as is known there is no specific remedy for this illness. The effect of the new antibiotics on the experimental disease in mice is being studied.

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SIMPLE AND MALIGNANT DISEASE OF CHILDREN

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(*Concluded from p. 869*)

D. EPITHELIAL CELL TUMOURS (TABLE VI)

The heading of this paragraph is deliberately vague because incorporated amongst carcinomas are two endotheliomas (mesotheliomas of the pleura and one angio-endothelioma of the liver. Apart from these all the other tumours were well defined carcinomas and they occurred only in the endocrine glands. The most common situation being in the adrenal. As can be seen from the appended table there was one granuosa-cell neoplasm of the ovary and one carcinoma of the thyroid.

TABLE VI: EPITHELIAL CELL TUMOURS

Type	*Age*	*Sex*	*Result*
1. Carcinoma-adrenal ..	12⅝	Female	*In statu quo*
2. Carcinoma-adrenal ..	¼	Male ..	*In statu quo*
3. Carcinoma-adrenal ..	6	Female	Died
4. Carcinoma-adrenal ..	4⅞	Female	Died
5. Carcinoma-thyroid ..	10	Male ..	*In statu quo*
60% were under the age of seven years Average age: 6·75 years			
1. Grandulosa-cell tumour ..	2⅓	Female	Died
2. Endothelioma	1⅝	Male ..	*In statu quo*
3. Endothelioma	2½	Male ..	Died
100% under the age of seven years Average age: 1·64 years			

1. *Suprarenal Carcinoma.* There were four cases of this nature and all produced the so-called Adreno-genital syndrome. There were three girls and one boy. All three girls showed striking somatic and sexual changes, i.e. enlargement of the clitoris, deepening of the voice, acne of the skin of the face, hypertension and an increase in the secretion of 17-keto-steroids. The one boy, who was 11 months old, showed well-marked enlargement of the penis and development of pubic hairs. These children were investigated for a minimum period of six weeks prior to operation. Our feeling is that this period is too long and that if no neurological signs are apparent, for tumours of the pineal, pituitary and astrocystic hamartoma [31] on the floor of the third ventricle may produce similar endocrine disorganization, no time should be wasted before exploring the adrenal glands. A pyelogram may give a lead to the side involved, and occasionally the duodenum may be displaced by a right-sided adrenal tumour. An attempt may be made to outline the adrenal for radiology by injection of air [32] around it, but usually laparotomy must be undertaken to decide which gland is the larger and to exclude arrhenoblastoma and tumours of adrenal rests in relation to the pancreas.[33] In children where the diagnosis of the affected side cannot be established, laparotomy is necessary for both adrenals are palpable from the abdomen; the left above the upper border of the pancreas, the right at the upper limit of the pouch of Morrison. If the left adrenal is felt to be the seat of a tumour it may readily be removed by the abdominal route. The spleen and tail of the pancreas require mobilization as a first step. The

right adrenal is best removed through a posterior approach similar to the Smithwick hypertension approach.

We consider it essential in cases of the adreno-genital syndrome, which are most commonly due to carcinoma of the adrenal cortex, that the diagnosis be established as soon as possible, for like Hypernephroma the tumour grows along the suprarenal vein to the vena cava and metastasises early to the lungs. There were no cases of survival in our series.

2. *Endothelioma of Pleura (Mesothelioma).* There were two cases in our series. According to Willis [28] there is no such thing as a primary pleural endothelioma and they are all extensions from undiscovered tumours from neighbouring viscera. Anderson [29] states that undoubtedly most of the instances of diffuse neoplastic involvement of the pleura are cases of unrecognized bronchial carcinoma with extensive secondary pleural involvement, but there appears to be a small residue of cases in which even with meticulous examination of the bronchi no intra-pulmonary tumour can be discovered. These are thought by some to be primary neoplastic growths of pleural mesothelium. The visceral pleura is more extensively involved than the parietal. We can find no reference in the literature to bronchial carcinoma occurring in the age groups in which these so-called endotheliomata were found, i.e. 2 11/12 and 1 1/2 12 years, and there were no other signs, clinically or at autopsy of carcinoma elsewhere.

3. *Other carcinomas.* The granulosa cell tumour of the ovary was made obvious by the precocious pubertal changes with the remarkable phenomenon of menstruation in a child of 2 1/2 12 years. Relatively few granulosa-cell tumours are malignant. Between 70 and 80% follow a benign course.

The carcinoma of the thyroid which was a malignant adenoma presented no unusual features except the age (10 years). The degree of malignancy in this type of tumour is relatively low and the prognosis relatively good.

E. RETINOBLASTOMA (TABLE VII)

TABLE VII

Type	*Age*	*Sex*	*Result*
1. Retinoblastoma	1 6/12	Male ..	Improved
2. Retinoblastoma	1 8/12	Male ..	Improved
3. Retinoblastoma	3 1/12	Male ..	Died
4. Retinoblastoma (bilateral)	3	Female	Both eyes enucleated. Died

100% under the age of seven years
Average age: 2·29 years

There were four cases in our series, all under the age of four. Retinoblastoma is almost restricted to infancy and childhood and because of the peculiar 'cats eye' reflection it is first noticed by the parents. It is a rare tumour. At Moorfield's Hospital, London, from 1871-1924 there were only 163 cases. Barrisford [31] estimated that at Moorfield's only one case of retinoblastoma occurred in every 96,000 new outpatients. From available figures it has also been estimated that one case of retinoblastoma occurs to about every 34,000 living births. Bilateral involvement is not rare, we have one case in our series of this nature. A striking feature of this tumour is the familial incidence and an inherited liability to the disease. One of the most remarkable of these was an Australian family. In this family 10 of 16 children died of retinal tumours, seven having bilateral growths. This familial tendency is so marked that Weller [32] sums up the eugenic aspect of the subject as follows—'Sterilization of any child who survives enucleation or irradiation for retinoblastoma, and the interdiction of further progeny to the parents of a child with Retinoblastoma, appear to be justifiable measures.'

SUMMARY

1. One hundred and twelve case of malignant disease in children are discussed (excluding glioma).

2. The great majority 79% occur under the age of seven years.

3. The common sites of new growths in childhood differ from those of adults. Tables pp. 99-103.

4. These sites are the retroperitoneal area, the haemato-topoetic system, the central nervous system and the lymphoid tissue.

5. Tumours are grouped and discussed according to their situations, and reference to relevant literature is made.

6. The records were taken over a period of six years from the Transvaal Memorial Hospital for Children, during which period a total of 24,170 cases were admitted.

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SIMPLE TUMOURS OF CHILDHOOD

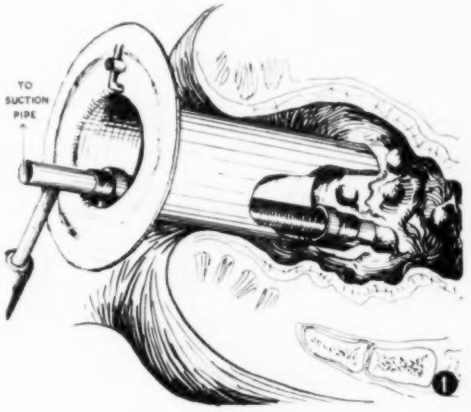
Simple tumours of childhood as opposed to the malignant ones do not have such specific characteristics, except in a few cases, and we propose in this paper to discuss only those simple tumours which have a special predilection for young individuals. In a six year survey from 1945-1950 at the Transvaal Memorial Hospital for Children there were 168 benign tumours admitted. They are much more common than malignant tumours. The total number of benign tumours which were treated at the Children's Hospital are not dealt with in our survey because a considerable number of such benign tumours are handled in outpatients and consequently no inpatient notes exist. The types of simple tumours which have occurred are seen in Table I.

As compared with malignant tumours, in which the major incidence is below the age of seven, simple tumours, except for dermoids and blood vessel tumours, tend to appear after the age of seven. In the case of the former, i.e. dermoids, all were under the age of seven and in the case of the latter 71% were under the age of seven.

Another peculiar comparison is that the simple tumours have a great tendency to present superficially, whereas the malignant tumours in their common situations tend to present deeply. In this paper we intend only to discuss, with special reference to treatment, those tumours which we consider interesting.

I. RECTAL POLYPS

These were the most frequently encountered simple tumours except for superficial cysts, and in the majority of cases, they were single. In our series there was one case of multiple polyposis involving the whole of the large bowel and three were multiple in the rectum only. Ladd and Gross[1] state: 'It is well known that polyps appearing at one site carry a certain implication that additional ones might concurrently exist in other parts of the intestinal tract'. The case of multiple polyposis was only discovered through a fortuitous barium enema and since this case we have made it a practice to X-ray all children with rectal polyps even if they are single on examination. Polyps vary considerably in size, the average being one centimetre across. In the early stages of a polyp it appears to be little more than a localized hypertrophy of mucosa, as time passes it nearly always becomes pedunculated. They are rarely discovered in the first year of life and have their maximum incidence at five years of age. Males are somewhat more frequently affected than females. The preponderance being 18 males and 15 females in our series. It is well known that individuals with multiple polyposis are very likely to have relatives similarly afflicted. This familial tendency is definitely not a feature in the patient with solitary polyp. The patients were brought to hospital, in all cases because of the symptom of rectal bleeding, in one case there was an associated rectal prolapse. No more than a few cubic centimeters of blood were passed on each occasion. The diagnosis is usually established on rectal examination. The polyp is almost always attached to the posterior aspect of the rectum.



The polyp that can be delivered outside the rectum is very easily dealt with by tieing off the base. When polyps are sessile and multiple it is difficult in our experience to treat by the standard procedures recommended in various textbooks. We have modified a very useful suggestion of Earl. J. Boehme[2] (Fig. 1). The suction piece of a bronchoscope is passed into a proctoscope and held in position by metal rings at its proximal and distal extremities. These metal rings are attached to the sides of the proctoscope. The suction piece is insulated by means of a rubber tube leaving a few millimeters exposed at either end. When the polyp is seen, the sucker is placed in contact with it and the suction turned on; when the polyp is seen sticking, a diathermy coagulation current is applied to the proximal end of the sucker. It is essential that the whole polyp be coagulated. It makes for easier working if a handle is attached to the sucker (see sketch). It is an easy procedure to deal with many polyps at one sitting. The great advantage is that there is no possibility of perforation of the rectum.

As far as multiple polyposis is concerned, we feel that a one stage resection of the colon together with anastomosis of the ileum to the rectum as low as possible, is by far the best procedure and the remaining rectal polyps are easily dealt with by the above technique. In this type of case regular inspection of rectum is necessary.

2. HAEMANGIOMATA

There are 18 cases in this group. Included amongst the figures were 16 of the cavernous or strawberry type; one capillary haemangioma i.e. port wine stain; one multiple congenital telengiectasis i.e. Osler-Weber Disease. All cases except the two latter varieties were treated. One should consider whether treatment is necessary in this type because of the possibility of spontaneous resolution. The flat capillary naevus (port wine stain) are always persistent and they are quite different from the faint reticular lesions seen in the glabella and nuchal regions, which often resolve spontaneously.[3]

The raised cavernous type has a great tendency to disappear. It was shown by Lister [4] that the majority resolve spontaneously by the age of five or six and in view of this fact we think that active treatment is not necessary, unless the tumour is growing more rapidly than the child, or if it is present after the age of six, or if it is unsightly. The treatment in situations other than the face can either be excision or diathermy coagulation. On the face the lesion is best treated by a radium plaque or deep therapy. The port wine stain especially if the colour is not unduly red, may be considerably helped by painting with Thorium X.

3. LYMPHANGIOMATA

There were four cases in the group; two situated in the neck, one in the axilla (cystic hygromas of the neck and axilla) and one in the tongue. This condition is rare. Goetsch [5] found 12 cases between 1925 and 1933. The handling of these cases is essentially surgical. There is an opinion that treatment is not necessary and that if a hygroma becomes infected a cure may be established. This is not the opinion of Goetsch. Aspiration is futile even if combined with sclerosing injections, because it is impossible to reach all the cysts in the complex, multilocular structure characteristic of hygroma. Figi [6] has strongly advocated the use of Radium in this type of case. The difficulty with this treatment, is that the ultimate cosmetic result is poor, for though there may be marked reduction in the size of the tumour, several hard fibrotic masses remain as well as thickened overlying skin. With radium or deep therapy treatment is prolonged while with surgery it is brief and recovery is prompt.

SUMMARY

1. 168 simple tumours were admitted to the Transvaal Memorial Hospital for Children during a period from 1945-1950.

2. As compared with malignant tumours, they tend to present after the age of seven and tend to present superficially, i.e. in relation to subcutaneous and mucous membranes.

3. The treatment of polyps of the rectum, haemangiomata and cystic hygromas is discussed.

CONCLUSION

This survey was undertaken, because during our association with the Transvaal Memorial Hospital for Children, as assistant surgeon (J.L.) and house surgeon (J.K.), we did not realize the numerical significance of malignant tumours in early life, and we would like to emphasize that there is no such thing as freedom from malignancy even in the new born, and that every solid tumour should be regarded as malignant until proved otherwise.

Our thanks are due to Dr. K. Mills, superintendent Johannesburg General Hospital, for allowing us access to records, and to the registry department of the Transvaal Memorial Hospital for their kind assistance.

Our thanks are also due to Mr. Blecher, second year medical student—for the illustration.

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CONSERVATION OF THE OVARY IN PELVIC SURGERY

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(*Concluded from p.* 855)

6. ENDOMETRIOSIS

When this disease affects the ovary in a woman under forty a difficult problem often presents. In these cases it is especially important to conserve ovarian tissue, for the disease tends to affect both sides, and the chances of its appearance in the second ovary must be borne in mind. Also, many of these patients are first seen because of their unfulfilled desire to conceive. However, it is equally important to remove any islet of endometrial tissue which may be a present, or potential, cause of symptoms. It should be emphasized, however, that surgical removal of affected tissue should err, if anything, on the side of conservatism, as it has been shown that in a proportion of cases, the lesions cause no symptoms, and tend to remain stationary. Such endometrial tissue is frequently discovered at post-mortem examinations, or when opening the abdomen for unrelated conditions. The importance of distinguishing this condition from haemorrhagic follicle cysts has been referred to.

7. INFLAMMATORY DISEASE

Inflammation of the ovary is nearly always secondary to salpingitis, but occasionally an ovary may be involved by direct spread from an inflamed appendix or pelvic

colon. Luckily the ovary seems to be particularly resistant to the spread of inflammation, and the common result of acute pelvic conditions is a peri-oophoritis involving the surface of the organ only.

The operator, therefore, should be careful to separate surface adhesions and inspect an ovary thus involved before embarking on its removal. In the majority of cases the functional capacity of the organ is not damaged, and it is only necessary to separate and remove the inflamed tube.

Abscess formation may involve the ovary and is most often the result of chronic gonococcal salpingitis, or tuberculous disease. A small abscess is occasionally found in a corpus luteum. Corpus luteum abscess is usually well localized and heals leaving a scarred area. An ovary involved in a chronic tubo-ovarian abscess will nearly always have to be removed with the mass, but when the condition is bilateral in a young woman, a determined attempt should be made to save some ovarian tissue.

8. THICKENED TUNICA ALBUGINEA

This condition is a result of chronic peri-oophoritis. As already stated, the inflammatory condition is usually limited to the surface of the ovary, and accompanied by adhesions to surrounding structures. Microscopically, a thin layer of connective tissue is seen covering the whole surface, or distributed in patches. Whether or not such thickening of the tunica can be a cause of follicles failing to rupture and forming cysts, is a question of practical importance on which opinions differ. A thickened tunica would seem a likely explanation for follicle cyst formation, but it is significant that in the majority of ovaries containing these cysts the surface epithelium shows no chronic thickening, and it is probably true to say that multiple follicle cysts are more common in an ovary which has not been inflamed. Also, post-inflammatory thickening of the tunica is by no means invariably accompanied by cyst formation.

On the other hand a thickened capsule is a possible factor in cases of sterility, and the operation of stripping the tunica is practised by some authorities (Reycraft, 1938 and 1949), with the object of allowing natural rupture of the follicle, and is reported to have relieved symptoms and established ovulation in some cases.

Stein *et al.* (1949) decompressing polycystic ovaries by bilateral wedge resection in women complaining of sterility, report successes resulting in pregnancy in 65%. They also claim that satisfactory menstrual function was restored in 89.3% of 75 patients operated upon. These authors confirmed the diagnosis of polycystic ovary by partial gynaecography.

Despite these reports it is the writer's opinion that a cautious attitude should be adopted in these cases and the too frequent resort to surgery condemned, for the ovarian condition is often the result of an upset endocrine balance and in the majority of cases, this upset balance is amenable to treatment.

9. TORSION OF THE OVARY

Although in the majority of cases of torsion, removal of the ovary is necessary, cases are sometimes met with in which it can be saved. Prompt laparotomy may reveal early congestion only, and if the twist is undone and the ovary held between warm saline swabs, the circulation is rapidly restored. Fixation to prevent recurrence will probably be necessary.

As with strangulation of the intestine, critical judgment is needed to assess the damage. The affected ovary is nearly always enlarged by a cyst which should be shelled out if it is judged that the ovary can be saved. Way (1946) reports 15 cases of torsion with a cyst, successfully treated by the conservative technique outlined above.

10. VARICOCELE OF BROAD LIGAMENT

Dilated veins in the broad ligament can be a cause of pelvic pain and discomfort, and may be dealt with without removing the ovary or damaging its blood supply. Ligation at each end and removal of a portion of the dilated plexus is indicated. Great care must be taken to avoid the ovarian and uterine arteries and their anastomotic channels.

11. PAIN IN THE RIGHT ILIAC FOSSA

For persistent pain in the right iliac fossa, the combined operation of appendicectomy, removal of the right tube and ovary and ventrosuspension has no place in modern surgery. Such operating is unscientific, and often unsuccessful, as in some cases the pain, possibly due to the right urinary tract or a displaced spinal disc, persists, much to the dismay of the operator and the patient. Admittedly the diagnosis in these cases is often extremely difficult, but it is quite unfair to the patient to sacrifice half her functional ovarian tissue when no definite pathological condition is present, and the diagnosis is in doubt.

CONSERVATION BY OVARIAN TRANSPLANTS

In conservative operations on the ovary, it is useless to preserve tissue if its vascular supply is inadequate. If removal of both ovaries, or damage to their blood supply, is inevitable, it may be possible to conserve functional tissue by transplantation.

Attached Transplants. After removal of chronic inflammatory, or tumour masses, occasions arise when all that remains of the adnexa is a damaged piece of one ovary with doubtful vascular attachments. Such tissue will probably not survive unaided, but if it can be placed in a vascular bed while retaining its remaining attachments, its chances of survival will be improved, success depending on the formation of a supplementary blood supply.

Free Transplants. When all vascular connexions have been severed, healthy pieces of ovary may sometimes be cut from the tissue, removed, and grafted to a suitable site. Free grafts, even if they take well, always undergo atropic changes and become replaced by fibrous tissue. Their functional life varies from a few months to two years. The benefit obtained in 'easing off' menopausal symptoms is often considerable and worth the extra operating time involved, but since the development of modern endocrine substances, especially pellet and crystal implantation, the importance of free grafts (autotransplants) has undoubtedly diminished, but the 'grafting' of tissue with some remaining vascular connexion is always worth while.

Transplants of ovarian tissue from other women (homotransplants), and even from apes (heterotransplants), have been tried and successes claimed, but their use is generally

impracticable, and no convincing evidence of their benefit has been shown.

Martin (1922) in a complete survey of the subject, agrees with this conclusion when he writes: 'There is some evidence that autotransplants are of some value in deferring the symptoms of the menopause and delaying the cessation of menstruation. It is difficult, however, not to attribute some of this evidence to suggestive therapeutics or to unattached ovarian tissue left *in situ*.

There is practically no convincing evidence that homotransplants have been successful in the human female. There is no evidence that heterotransplants have been successful where the human female has been the recipient'.

VASCULAR CONNEXIONS OF THE OVARY

Blood is conveyed to the ovary along two main channels which run in opposite directions. Laterally, the ovarian artery, a branch of the abdominal aorta, enters the broad ligament by the ovario-pelvic fold, and from the medial side the upper portion of the uterine artery runs towards the ovary between the layers of the broad ligament. These two vessels, both of which are of considerable size, anastomose at a point approximately opposite the ovary. From this junction a single short vessel passes dorsally between the layers of mesovarium and breaks into several branches on entering the hilum, the latter dividing to form the spiral arteries described by Reynolds (1947). It should be noted that damage in this area will cut the main blood supply to the organ, whereas if either lateral supply is interrupted alone, the chances of its survival may not be greatly jeopardized. From the arch formed by the anastomosis of ovarian and uterine arteries three main branches supply the fallopian tube: the lateral, middle, and medial tubal arteries, and these vessels themselves anastomose, forming arcades below the tube. Another small branch of the uterine artery runs to the ovary in the ovario-uterine ligament.

Blood is drained from the ovary by two or more veins, which on reaching the broad ligament, divide, to form the pampiniform plexus. The veins of this plexus lie between the layers of the broad ligament where, on occasion, they become congested and may cause symptoms. Two veins drain the plexus laterally and accompany the ovarian artery in the ovario-pelvic fold. These form a single vein which terminates on the right in the inferior vena cava, and, on the left, in the left renal vein. Occasionally these veins contain valves. Medially the plexus connects up with the uterine plexus, and is drained by the uterine veins into the hypogastric vein. The operator who is aware of these excellent vascular connexions which nature has provided for the ovary, in a difficult case, may be able to preserve functional tissue which would otherwise be sacrificed.

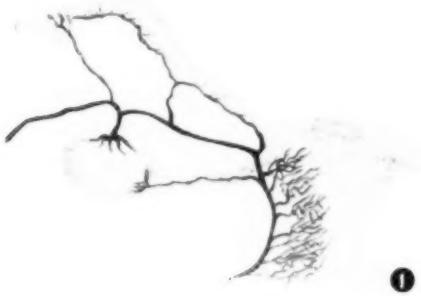

Fig. 1. Diagrammatic drawing of the arterial blood supply to the ovary.
Fig. 2. Wedge excision of a cystic area of the ovary.
Fig. 3. Method of conserving functional ovarian tissue in the case of large innocent cysts and solid tumours.

OPERATIVE TECHNIQUE

The technique used in conservative operations on the ovary, is not standardized and varies with the individual operator. The following operations are, however, methods of treatment that are in general use, of which the writer has experience.

1. *Simple Puncture of Follicle Cysts.* The point of the scalpel or a large cutting needle, may be used for puncture and evacuation of the fluid from follicle cysts. The ovary is held in a gauze swab and two or more puncture holes are made. Several cysts are often dealt with at the same time, but it must be born in mind that even the slight trauma of puncture produces an inflammatory exudate with the danger of adhesions forming. Unless the endocrine balance can be corrected, the possibility of the cysts refilling after simple puncture is great, and if many cysts of considerable size are present, more radical procedures are preferable. In all cases where the ovary has become unduly heavy, and its attachments stretched, ovarian suspension should be performed after cysts have been dealt with. A continuous pleating suture

of No. 1 chromic catgut or fine linen thread is inserted along the free border of the ovarian ligament, which when tied, shortens this ligament and holds the ovary in its normal position.

2. *Puncture and Removal of Lining: Follicle Cysts.* Where one or two small cysts are present with half or more of their diameter buried in the ovary this operation is applicable. The free surface of the cyst is cut with a scalpel and the lining seized with non-toothed dissecting forceps, and pulled up. It is then gently dissected away with small pointed scissors. One or two stiches on a small atraumatic needle carrying No. 00 catgut are used to close the small cavity.

3. *Excision of Cyst.* The importance of this manoeuvre has been adequately emphasized by Bonney (1938) who has named the operation cystectomy. An incision is made through the ovarian capsule extending across the free surface of the cyst, care being taken not to puncture the latter. With the ovarian capsule held in dissecting forceps, a curved dissector is introduced between it and the cyst wall. The dissector is swept round, separating the cyst, which can usually be removed intact. The resulting cavity is now closed with a continuous suture of No. 00 catgut on an atraumatic needle, and all dead space obliterated. This operation is generally used when single cysts of three centimetres and upwards in diameter are to be dealt with.

4. *Excision of Cystic Area of Ovary.* Where multiple small cysts which require treatment are grouped together on one section of an ovary, they may be excised in block with a wedge-shaped portion of ovarian tissue. A continuous suture of fine catgut is used to approximate the raw edges. As ovarian tissue is friable, and the sutures liable to cut out, a good bite should be taken with the needle and the suture pulled up lightly, with only sufficient tension to control bleeding.

5. *Excision of Thickened Capsule.* Localized areas of thickening may be excised completely but where such thickening is diffuse, removal of one or more strips will attain the object of relief of tension with the possible resumption of normal ovulation. A strip of thickened tunica, one centimetre, or more, in width, is dissected up in the long axis of the ovary on each surface. Fine catgut is again used for haemostasis, but no attempt is made to suture the capsule. As might be expected, adhesions are liable to form when the ovary is thus treated, and the organ should be fixed as far as possible out of harm's way, and walled off from small intestine by the large bowel or omentum.

6. *Removal of Neoplasm.* Innocent neoplastic cysts and solid tumours can be removed leaving part, or all of the ovary behind. All tumours must be carefully inspected before a decision can be made and the operation planned. If the chances of salvage appear favourable, a circular incision is made in the capsule of the neoplasm around the attachment of the pedicle, but some distance away from it. The capsule containing flattened ovarian tissue and blood vessels, is now dissected back to the pedicle. The vessels supplying the tumour are clamped and severed, and the tumour removed. The circular piece of capsule is brought together with fine catgut and bunched up over the tumour pedicle. Occasionally, quite large cysts may be shelled out and the whole capsule containing the thinned-out ovary, retained.

7. *Transplantation of Ovarian Tissue.* The site for transplantation is of great importance. A position on the side of the uterus between the layers of the broad ligament, is most favourable, or if the interstitial portion of the tube has been excised, the piece of ovary may be sutured in this raw area. A raw vascular area on the pelvic wall is also a useful place. As ovarian grafts are particularly liable to cystic changes, the site selected must allow for free expansion, as a graft under tension may give rise to unpleasant symptoms.

The broad ligament near the lateral border of the uterus is opened with special care, as any sutures used to control the bleeding will affect the chances of a successful 'take'. Oozing may often be checked by pressure from a hot swab. The raw surface of the remaining piece of ovary is now placed against the side of the uterus, and held in position by suturing the layers of the broad ligament to its undamaged surface on each side. If necessary, one or two interrupted sutures may be used to attach the edge of the ovary to the uterus, but such are better avoided if the ovary can be held steady by the broad ligament alone. The finest obtainable plain catgut is used on a small atraumatic needle.

Post-operative care is important and any undue movement is avoided for the first five days. Free grafts may be used when all ovarian tissue has, of necessity, been removed. The graft should be selected and cut immediately. The tissue removed is placed on a sterile towel and a careful search made for healthy ovarian tisue. The piece chosen should, if possible, be covered by peritoneum on one side only. It is then placed in the pouch of Douglas in contact with the body fluids until required. The technique of transplantation is essentially the same as for attached grafts, and though the broad ligament is commonly used, the choice of site is obviously wider. The under surface of the rectus muscle, the breast, the labia majora and the thigh have all been used with reported success.

SUMMARY

1. A plea has been made for greater conservatism in the operative treatment of conditions affecting the ovary.

2. The commoner conditions in which the ovary is sometimes removed without justification have been listed, and brief reference made to the physiology and pathology of these conditions. The correct line of conservative treatment in each instance has been summarized.

3. The method of conserving ovarian function by transplants has been described and the value of this procedure in modern gynaecology assessed.

4. The importance of an adequate blood supply to the ovary, if it is to continue normal function after operative interference, has been emphasized, and the anatomy of its normal vascular connexions reiterated.

5. The techniques of various conservative operations on the ovary have been described.

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ASSOCIATION NEWS : VERENIGINGSNUUS

SOUTH AFRICAN ASSOCIATION OF SURGEONS: MEETING OF THE JOHANNESBURG BRANCH HELD ON 25 SEPTEMBER 1951

OPERATIONS ON THE HEART

Mr. Fatti: Operations on the heart itself have been done until the last two or three years mainly for stab wounds and bullet wounds. But operations on the great vessels close to the heart, and experience with pericardiectomy, have shown methods of side-stepping or avoiding difficulties and made interventions on the heart itself not only feasible but reasonably safe. Although the mitral valve was attacked as far back as 1922 by Beck and again by Souttar in 1924, surgeons could not operate with confidence until three factors had become easy of accomplishment, viz.: (1) general anaesthesia with the open chest, avoiding anoxia; (2) local desensitization of the heart by intravenous and local application of Procain and Amethocaine avoiding vagal, bundle and myocardial disturbances; (3) more accurate diagnosis of the errors in the heart by means of catheterization and angiocardiography, etc. Catheterization and electrocardiography are often of value during the operation itself and oxymetry will also be used to assess oxygenation of the blood.

Congenital Heart Disease. In most forms of congenital cyanotic heart disease, it is the outflow tract from the right ventricle that forms the key error in the anomaly. It is obstructed either by the pulmonary valve itself, the cusps of which are fused into a tent-like structure with an apical ostium or by a subvalvular defect in the form of a tight fibro-muscular stricture at the exit of the main cavity of the right ventricle, or both forms of obstruction are present. Associated anomalies like defects in the septa and the aorta over-riding the ventricular septum do not produce cyanosis unless the right ventricular outflow is obstructed, and unoxygenated blood is compelled to enter the left side of the heart. In pure pulmonary stenosis there is no cyanosis until the right ventricle fails in its effort to push blood through the narrowed outflow tract.

Blalock's operation, or Pott's modification, consists of anastomosing the subclavian artery or the aorta to the pulmonary artery beyond the obstruction. This ingenious manoeuvre was an enormous advance in the treatment of morbus coeruleus, and gave a great fillip to the surgery of the heart, but it added a further anomaly to those already present. Brock of Guy's Hospital devised a method of direct attack on the obstruction itself, which both theoretically and practically solves the major part of the problem of Fallot's tetralogy, and is a complete cure in cases of pure pulmonary stenosis.

At operation, the front of the right ventricle is incised, allowing the entry of a racket-shaped valvulotome, which is passed up the pulmonary artery and cuts the single dome-shaped valve into two cusps. The rest of the dilatation is performed by passing either a finger or special dilators into the right ventricle and the pulmonary artery. The incision into the heart does not split unduly, as the muscle is three-ply. Bleeding is prevented by a finger placed on the hole and blood loss is slight, even though the pressure in the ventricle may equal that in the left side of the heart.

If the stenosis is below the valves (infundibular or subvalvular stenosis) the shelf-like or cylindrical obstruction is punched out through the same type of approach by a special punch and dilators. Muscle is thus removed from the anterior part of the ventricular septum, cutting out a channel for the outflow tract. If a valvular stenosis is also present, the valvulotome is used in addition to the punch. Theoretically both the anterior wall of the intracardiac aorta and the bundle of His may be damaged by operation. In practice the latter accident occurred once, not by the punch but by injecting local anaesthetic too deeply into the heart as a preliminary. When the obstruction has been removed the incision in the heart is closed by three or four mattress sutures.

Post-operatively, the colour changes strikingly and at once to a fair degree of pinkness, and this process continues for three or more weeks while the red cell count is falling from 8 or 9 to 5 or 6 million per c.mm. The other striking improvement is in the exercise tolerance, which often becomes normal.

The diagnosis is made, if possible, before operation and is sometimes remarkably accurate. In this I have had the valuable help of Dr. Maurice Macgregor of the Cardiac Unit, Johannesburg General Hospital. It is then confirmed at operation, by palpation of the right ventricle, the bulbus cordis and the pulmonary artery. The closing click of normal valves is easily felt and recognized, as is the jet of blood through a tight stenosis. From inside the heart a special probe, or the finger, completes the diagnosis and also helps to decide when enough dilatation has been produced.

Mitral Stenosis. In this form of obstruction to the circulation the left atrium and auricle are enlarged, and the latter (formerly called the auricular appendage), offers an easy route of entry into the atrium.

After painting it with Procain this process is lifted up and lightly clamped across its root. The tip is incised enough to allow entry of the index finger, which thus blocks the hole while the clamp is removed. The finger in the atrium explores the upper surface of the mitral valve, noting the presence and amount of regurgitation, and measuring the size of the orifice. It is often only ½ inch in diameter and may be nodular and even calcified. If placed near the back of the mitral ring the ventricular wall can often be felt to close the orifice during systole. The tip of the finger is then pushed into the region of the anterolateral commissure; this usually splits fairly easily, even when calcified, and the finger is pushed through to the first joint. The lumen thus produced is 2½ inches (6.25 cm.) in circumference. If further enlargement is required or the splitting cannot be started, the finger is withdrawn, armed with a special knife which acts like a sharp finger nail and returned to the atrium. The knife is rarely needed, but in any case care is exercised not to cut the anteromedial cusp, which acts also as the lowest part of the wall of the aorta.

After the finger is removed the clamp is re-applied, most of the auricle is cut off to avoid clots forming in the cul-de-sac, and the atrium closed by a single row of sutures.

If clot is felt in the atrium on first entering it, it is gently detached and allowed to be washed out of the atrium by removing the finger but without applying a clamp.

Intravenous Procain is continued for 1-6 hours after operation, partly to cut down pain and partly to avoid arrhythmias. Heparin is not used as post-operative clotting is much less likely than haemorrhage.

On recovery the pulse, previously small, is now full. Blood pressure and pulse pressure increase. Sometimes the presystolic murmur disappears—it may recur in 2-3 days, then go again or change in type.

Indications. The most favourable cases are those with:—

1. Paroxysmal nocturnal dyspnoea, with or without attacks of oedema of the lungs.
2. Low exercise tolerance with marked dyspnoea. Most patients in this group can walk on the flat, but only 20-30 yards up hill.
3. Haemoptysis. This may be very severe.

Test for Fitness:—

1. Exercise tolerance.
2. Ballistocardiography. This demonstrates low cardiac output. It is also useful as a post-operative test.
3. A catheter in the right ventricle usually shows a raised systolic pressure of up to 100 mm. Hg instead of 25 m/m. Hg.

Relative Contra-Indications:—

1. Fibrillation.
2. Mitral stenosis with good exercise tolerance—can play golf, etc.
3. Mitral regurgitation used to be placed in this group. Its extent is seen in right oblique radioscopy after barium swallow, the oesophagus being displaced backwards during ventricular systole. But our ideas of mitral regurgitation are being slowly modified as a result of experience and a suitably placed mitral orifice may even be relieved of regurgitation by

commissurotomy. Improvement in one case was great enough to allow resumption of underground mining in spite of regurgitation. But an increase of regurgitation by tearing into the anterior cusp may be fatal.

Regurgitation may be improved by a manoeuvre which combines valvulotomy with a tendon graft through the heart to the under surface of the posterior cusp. The tendon is so placed that the ventricular beat pushes it into the stream of regurgitation, thus lessening the leak.

Of the nine cases operated on so far, one died from ventricular fibrillation and one from regurgitation; the other seven have been greatly improved; five of them have returned to full work, including the miner. The other two are too recent for assessment, but the prospects are excellent.

In the future a great deal more will be possible with the Jongbloed artificial heart. It will then be possible to sidetrack the circulation from the heart altogether, and to correct congenital or acquired intracardiac lesions such as septal defects. In the meanwhile a great deal of experimental work is going on and is extremely promising.

PASSING EVENTS

CLINICAL MEETINGS: CAPE TOWN

Joint meetings have been arranged by the Cape Town Post-Graduate Medical Association and the Cape Western Branch (M.A.S.A.), as follows:—

Speaker	*Subject*	*Approximate Date*
Dr. K. L. Allan ...	Neuropathies due to Cervical Spurs	19 December 1951
Prof. N. Capon ...	Diseases of the Newborn	8 January 1952
Dr. M. M. Suzman	ACTH Therapy	23 January 1952

The meetings will be held at 8.15 p.m. in the Physiology Lecture Theatre, Medical School, Mowbray.

LIABILITY POLICIES

At this time of the year it is appropriate to consider the adequacy of protection available under liability policies held. The Atlas Assurance Company Limited, the Association's official Insurers, have mentioned that cover up to £25,000 for any one claim may be obtained and all policy-holders should satisfy themselves that the limits of indemnity provided by their policies are adequate, bearing in mind that as the value of money decreases the tendency to claim higher damages increases.

The Atlas Company makes a practice of bringing this point to the notice of all policy-holders as the policies come up for renewal. Careful consideration should be given to this question when renewal reminders are received.

IN MEMORIAM

DR. W. H. H. CROUDACE

Dr. J. D. Joubert of Umtata writes: In the passing of Dr. Croudace, of Maritzburg, South Africa has lost one of her most brilliant general practitioners. Dr. Croudace loved his work and never seemed to tire of it. He took a very keen interest in obstetrics, he ran a very big ordinary general practice, but it was in surgery that he really shone. He belonged to the class of medical practitioner who started off by practising all branches of medicine, but made sufficient time to equip himself for work of a more specialized nature. Thus it was that as a general practitioner he nevertheless had a very big surgical practice. He was meticulous and painstaking in all his work, and the more difficult the operation the better did he shine in his methods. It was in the field of urology that one found him at his best, and to see him handle a cystoscope was a real pleasure.

Dr. Croudace was a lovable man and was respected by his colleagues and patients alike. I shall never forget his gentle, friendly, welcoming smile.

He was a sportsman of no mean calibre and played excellent golf and tennis.

It was at his home and with his family, however, that he was most happy, and I can recall spending many a happy afternoon playing tennis on their private court, and many an enjoyable evening was spent with the family chasing round a ping-pong table.

A few years ago, when going through Maritzburg, my wife and I called in to see them. Before taking us into the house, he rather sadly but jokingly took us round to the back garden to show us that the tennis court had been transformed into a vegetable garden.

A few years ago he had a serious and incapacitating operation, and yet when one spoke to him less than a year ago he said that he had never felt so well, that he could now work very much harder, and that he found long hours at the operating table less of a strain than ever before. This surely is ample proof of the courage and fortitude of this most lovable man.

To his wife and family we extend our heartfelt sympathy.

Dr. C. E. L. Burman writes: The death of Dr. W. H. H. Croudace occurred at Pietermaritzburg, Natal, following an illness which started four years ago. At that time he made a good recovery. Three months ago his health gave cause for anxiety and in spite of all modern treatment, he passed away during the morning of 27 October in Grey's Hospital, which he had served so loyally for 35 years.

Dr. Croudace was born on 9 October 1881 at Bishop Auckland, County Durham, the son of a clergyman. He qualified M.B., B.S. in 1905 at Durham University, Newcastle-on-Tyne College of Medicine, Northumberland. He came out to South Africa in 1907 on account of his health, as assistant Medical Officer to Dr. C. H. Crass at Grey's Hospital, Pietermaritzburg.

In 1908 he married Grace Household and went into general practice at Himeville, a small village 90 miles from Pietermaritzburg. For eight years he led the hard and strenuous life of a lone country doctor in the wilds, facing the hardships which those far-back early days entailed in a rural practice, visiting sometimes on foot and at other times on horseback.

In 1916, his health now completely restored, he returned to Pietermaritzburg and joined the late Dr. Buntine in general practice, finally taking over the practice on the death of Dr. Buntine. In 1918 he was appointed an Honorary Surgeon on the Visiting Staff of Grey's Hospital and retired from this post in 1945. For this loyal and long unbroken service, he was made Honorary Consultant Surgeon by the Natal Provincial Administration, on the recommendation of the Surgical and Medical Staff attached to Grey's Hospital. His services were eagerly sought by his colleagues, especially in genito-urinary cases, a side-line which he had developed to such an extent that at one time he had thoughts of confining himself to this branch of surgery. However, he preferred to remain a general practitioner to the end.

He was, until recently, a member of the British Medical Association.

He was elected President of the Natal Inland Branch S.A.M.A. in 1920 and held this office again in 1927, 1928 and 1932. An honour of which he was very proud was his election as President of the 24th South African Medical Annual Congress, which was held in Pietermaritzburg in 1936. Always a staunch supporter of the general medical practitioner, he had the opportunity of expressing to the public and the medical men attending the Congress, in his Presidential Address, the value and requirements of a successful general practitioner.

Dr. Croudace was a keen sportsman and played all games well. Hockey, golf, tennis and later in life, bowls, came to him easily. Any spare time in the evenings he devoted to billiards and snooker, and he played against players of inter-

national repute on several occasions at the Victoria Club. These two games he enjoyed more than any other game, because of the relaxation which they gave him after a strenuous day of work. He was made a life member of the Kershaw Tennis Club, Pietermaritzburg, a short while ago—an honour which he fully appreciated. Always a lover of nature, he enjoyed long walks with his dogs as his sole companions in the country around Maritzburg and in other parts of rural Natal.

During the whole of his busy life he had the loyal support of his wife. The loss of two sons while on active service during the 1939-1945 Great World War was a sad blow, but one which he held to himself.

He is survived by his wife, two daughters and four sons, and his last wish, namely, to be buried in the little village of Himeville where he started life in earnest, was faithfully carried out. Another loyal servant to the public has gone, but he will long be remembered in Maritzburg.

Dr. C. H. Crass writes: I first met Hugh Croudace at the Durham University College of Medicine at Newcastle. Like myself he was a North Country man, Canon Croudace (his father) being for many years at Alston in the Moorlands. I was not his closest friend—he and a man named Birt were inseparables and always went about together. However, in our later years I saw a lot of Croudace and we often went for walks together. At my son's wedding he, in proposing the toast of the bride and bridegroom, alluded to an occasion when he and I sat on a bench in Jesmond Dene and discussed life and the future. However, our real intimacy began when, having become Medical Superintendent of Grey's Hospital, Pietermaritzburg, I wrote to my old school at Newcastle for an assistant and Croudace applied for and obtained the post. He had had a tuberculous infection of the lung and was anxious for a change of climate. The time he was with me was the pleasantest and easiest part of my five years at Grey's Hospital. I cannot remember a single instance of friction between us. This, I am sure, was due to his wonderful tact, kindliness and pleasant manners, which made him the easiest person to get along with and the nicest to work with.

He was very sound but by no means brilliant, and showed little promise of becoming the excellent surgeon he was to become afterwards. Our association quickly ripened into a close friendship which, with a few ups and downs, but mostly 'ups', I am glad to say lasted with increasing warmth on both sides until his death. We practised together the art of equitation in which he made rapid advance although he never rode quite like one accustomed to the saddle from childhood. His horsemanship was to stand him in good stead later in a country practice, when roads and motor-cars were few. He was always a 'games man' at College and afterwards, played lawn tennis and hockey in the latter of which games he excelled and was a member both of the College of Medicine and the University teams. He was an outstanding billiard player and a useful golfer. I think the foundation of his very wide popularity was his delightful manner, extremely pleasant voice and above all his *kindliness*. He possessed a great sense of humour and could be a very amusing companion, '*always hearing and telling some new thing*' like the Athenians of old.

On the evening he got engaged he insisted we should pledge the occasion in 'the wine of the country'. When I raised my glass to drink the health of his fiancée, he burst out with that delightful boyishness which distinguished him: 'Oh, isn't she a *bonny* girl!' I was his best man later at the wedding, and still remember the effect of sweet champagne at 8 a.m. before a long morning's work!

On his marriage—he married Nurse Household, one of the very best nurses that Grey's ever produced—he went to Himeville. As I shortly afterwards went to the Transvaal, we did not meet again until my return to Natal after leaving the S.A.M.C. in 1918. We got in touch again and he attended my infant son and did a tracheotomy for diphtheria. His children used to spend their holidays with us and the families saw a great deal of each other.

The tragic loss of his two sons in the last war left a permanent mark upon him. His doctor son showed great ability and promise as a surgeon, and the engineer was a most able man. This loss Croudace never quite recovered from. He, however, found great happiness and pleasure in his grandsons. I think until the severe pain which at times clouded his last days, he could be called a singularly *happy* man, both by disposition and environment. A life of *service*, willingly given, and of no mean success in his chosen work, with a happy family life and a great many friends, surely constitutes success in its truest meaning.

As far as I know, and I was very close to him, the only serious cloud was the loss of his two sons. *Requiescat in pace.*

CORRESPONDENCE

THE PUBLIC AND UNREGISTERED PRACTITIONERS

To the Editor: The letter by 'Epistaxis' on the subject of unregistered and unqualified persons who act as doctors displays surprising naiveté. 'Epistaxis' wants to know why the quacks are with us; why people support them or even tolerate them. He does not ask who is to blame for this state of affairs, and seems to suggest that the Government take both the public and the medical profession into protective custody to safeguard them from the machinations of these nefarious and unscrupulous gentlemen.

That we have a plethora of quacks of all kinds who have battened themselves on the more gullible section of the public is beyond dispute. But it is my opinion that the fault lies entirely at the door of the medical profession itself, quite apart from the relative lack of health education of the public at large. So long as medical students are trained as technicians, and doctors tend to make a business of their profession, one cannot expect anything else to happen.

I have no quarrel with a system of training that produces good diagnosticians; but a doctor must be more than a specialized diagnostic machine. He is a human being and his patients are human beings. He must therefore be trained to deal with human beings; his study of diseases must merely be the means to such an end.

Many people who present themselves to doctors have nothing organically wrong with them. They are merely worried and unhappy, and crave for interest, attention and human sympathy. They have families, homes, jobs, and very few of them are able to withstand the many kinds of frustrations they encounter in their daily lives. To many people to-day a doctor is a kind of slot machine. You pay your 12s. 6d. and out pops a diagnosis and a bottle of medicine. But inwardly people feel that they need more than this. They would like the doctor to take a friendly interest in themselves, their families and the total circumstances of their lives.

When they cannot get this from their doctors they turn to quacks who are more adept at soothing their wounded breasts. Is it therefore small wonder that quackery is a flourishing business to-day?

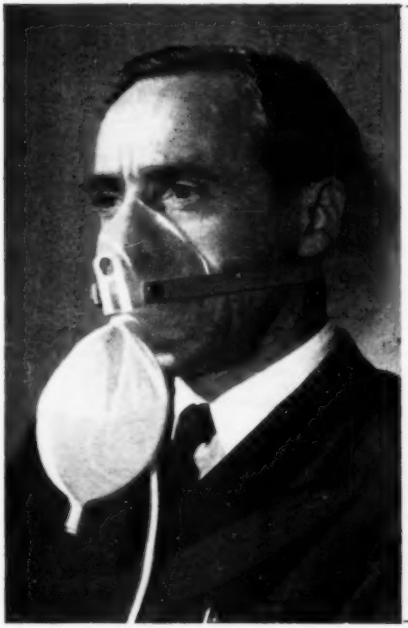
I do not suggest that we should emulate the quacks. Nothing is further from my mind. But we should be trained to become family doctors and as such to resume our rightful place in the scheme of things as the friends, guides and mentors of our patients. For this we need more than a technical training. A broad cultural training and a knowledge of sociology and the humanities are absolutely essential. In support of my contention I wish to refer readers to the excellent article by Mr. T. Lindsay Sandes on the subject in a recent issue of your *Journal*.

A little while ago Dr. Blyth made out a strong case for the establishment of a Chair of General Practice. This is an excellent idea and should produce very good results, particularly if allied to Social Medicine.

When the Family Doctor comes into his own again, the quacks will die a natural death.

Epithora.

Cape Town.
31 October 1951.



The Medical Association of South Africa
Die Mediese Vereniging van Suid-Afrika

AGENCY DEPARTMENT : AGENTSKAP AFDELING

JOHANNESBURG

Medical House, 5 Esselen Street. Telephones 44-9134-5, 44-0817
Mediese Huis, Esselenstraat 5. Telefone 44-9134-5, 44-0817

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(Pr S32) Johannesburg practice. Average annual receipts £1,500. Premium of £1,250 includes surgery equipment and furniture.

(P 09) Southern Rhodesia, partner required, Englishman preferred.

MEDICAL EQUIPMENT

(E 023) Heavy based Irrigator stand, height adjustable, complete with glass flask and hook to carry vacolitre flasks. £7.

(E 024) Bausch & Lomb microscope. Condition as new. Oil, high and low power lenses. Two eye-pieces. £60.

PLAASVERVANGERS VERLANG : LOCUMS REQUIRED

(L/V138) Suid-Vrystaatse dorp. Vanaf 1 Desember tot 30 Desember. Salaris £2 2s. p.d. plus 1s. per myl plus vry inwoning.

(L/V139) Free State mining town. From 27 November 1951 to 1 January 1952. £3 3s. p.d. plus all found. Car not essential.

* * * *

KAAPSTAD : CAPE TOWN

Posbus 643, Telefoon 2-6177 : P.O. Box 643, Telephone 2-6177

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(877) Cape Midlands. Exceptionally well-established solus prescribing practice in progressive inland hospital town. Good deal of surgery done. Average annual receipts approx. £6,200. One appointment. Premium required £3,000. House for sale at £4,000. Terms could be arranged. Good schools. Willing to give thorough introduction.

(836) Oostelike Provinsie. Dorp met moontlikheid van hospitaaldienste binnekort. Medisyne word aangemaak. Jaarlikse ontvangste gemiddeld £2,266. Twee aanstellings. Huis en apteek teen £12 p.m. te huur. Premie van £1,500 sluit ligte installasie in. Geen opposisie nie.

(805) Transkei. Native and D.S. practice near large town. Average annual receipts £3,375. House for sale £3,250. Bond for £2,000 may be available. Goodwill £2,000. Terms possible.

(848) Cape Town, Southern Suburbs. Solus practice. Average annual receipts £2,088. Premium and terms open to discussion. Excellent opportunity.

(860) Noordelike Kaapprovinsie. Vooruitstrewende aangename hospitaaldorp met uitstekende skole. Venootskapspraktyk met kontant inkomste van £6,459 in afgelope jaar. Twee aanstellings. Uitstekende geleentheid vir snykunde.

VENNOOTSKAP VERLANG : PARTNERSHIP REQUIRED

(811) Partnership share in Cape or Natal in predominantly English-speaking practice with min. net income £2,500 p.a.

ASSISTENTE PLAASVERVANGERS VERLANG ASSISTANTS LOCUMS REQUIRED

(887) Cape Town suburb. Assistantship for 1 year from 1 February or as soon thereafter as possible. Salary offered £2 2s. a day plus all found and possibly extra emoluments. It is not necessary for the assistant to possess his own car.

(809) Gentile assistant for Transkei general practice with D.S. appointment. Single man preferred. Excellent opportunity to gain sound experience. Salary to be arranged.

(776) Noord-Kaaplandse hospitaaldorp. Vir 6 weke vanaf 15 Desember. £2 2s. 6d. per dag plus losies plus 9d. per myl kartoelae. Asook reiskoste gelykstaande aan eersteklas-retoerkaartjie.

(831) Western Cape coastal town. December/January for 5 to 6 weeks. £2 2s. p.d. plus board and lodging and travelling allowance.

Locums and/or assistants urgently required. Please write in for details.

Plaasvervangers en/of assistente dringend benodig. Skrywe a.u.b. om besonderhede.

Provincial Administration of the Cape of Good Hope

UNIVERSITY OF CAPE TOWN: JOINT MEDICAL STAFF

1. Applications are invited from registered medical practitioners for appointment to a post of Medical Practitioner, Grade F, with salary at the rate of £1,800 per annum in the department of anaesthetics on the Joint Medical Staff for the Groote Schuur Hospital and other teaching hospitals in the Cape Peninsula.

2. In addition to the salary indicated, a cost-of-living allowance at the rates prescribed from time to time by the Administrator, is payable. (Present rate is £256 per annum for married and £80 per annum for single persons.)

3. The following conditions of service will apply to the appointment:—

(a) The appointment will be, in terms of and subject to the provisions of Ordinance No. 19 of 1941, as amended, and the regulations framed thereunder.

(b) The Joint Medical Staff will be required to serve jointly the Provincial Administration of the Cape of Good Hope and the University of Cape Town.

(c) The successful candidate, if not already in the Hospital Board Service, will be required to submit satisfactory birth and health certificates.

4. Candidates must have not less than three years' experience after registration as a specialist in anaesthetics.

5. Application must be made on the prescribed form (Staff 23) which is obtainable from the Director of Hospital Services, P.O. Box 2060, Provincial Building, Wale Street, Cape Town, or from the Branch Representatives of the Hospitals Department, Cape Town (P.O. Box 1487), Port Elizabeth (P.O. Box 80), East London (P.O. Box 13), Kimberley (P.O. Box 618) and Umtata (P.O. Box 202), or from the Medical Superintendent of any Provincial Hospital or Secretary of any School Board in the Cape Province.

6. The completed application forms must be addressed to the Director of Hospital Services, P.O. Box 2060, Cape Town, and must reach him not later than 30 December 1951. Candidates must state the earliest date on which they can assume duty. (Y267943)

Transvaal Clothing Industry Medical Aid Society

PART-TIME MEDICAL OFFICERS

Applications are invited from fully qualified registered medical practitioners for part-time posts for the following areas for both European and non-European members.

(i) North Western area outside Municipal boundary but to include some marginal suburbs such as Northcliff, Linden, Craighall Park, etc. (European members only.)

(ii) North Eastern area outside Municipal boundary but to include some marginal suburbs such as Bramley, etc. (Mainly non-European members.)

(iii) South Eastern area including Klipriviersberg, South Hills, etc. (European members only.)

(iv) South Western area No. 1 including Crown Gardens, Linbergh Park, etc. (European members only.)

(v) South Western area No. 2: Kliptown, Nancefield, Comptonville and Pimville (Mainly non-European members.)

(vi) South Western area No. 3: Orlando, Moroka, Jabavu Noordgesicht, etc. (Non-European members.)

(vii) Kempton Park. (European and non-European members.)

(viii) Randfontein. (European and non-European members.)

Application may be made for one or more of the above areas. Further information obtainable from the undersigned. Applications accepted up to 15 December 1951.

Helen Joseph
Secretary

P.O. Box 3097
Johannesburg
Telephone 22-9384

Provinsiale Administrasie van die Kaap die Goeie Hoop

UNIVERSITEIT VAN KAAPSTAD: GESAMENTLIKE MEDIESE PERSONEEL

1. Aansoeke word ingewag van geregistreerde geneeshere vir aanstelling in 'n pos van Geneesheer, Graad F, met salaris teen £1,800 per jaar, in die Departement van Narkose in die gesamentlike mediese personeel vir die Groote Schuur-hospitaal en ander opleidingshospitale in die Skiereiland.

2. Benewens die salaris soos aangedui is 'n lewenskostetoelae betaalbaar teen tariewe wat van tyd tot tyd, deur die Administrateur vasgestel word. (Huidige tarief £256 per jaar vir getroude en £80 per jaar vir ongetroude persone.)

3. Die volgende diensvoorwaardes is van toepassing op die aanstelling:—

(a) Die aanstelling is ingevolge en onderworpe aan die bepalings van Ordonnansie nr. 19 van 1941, soos gewysig, en die regulasies daarkragtens opgestel.

(b) Van die gesamentlike mediese personeel word vereis om die Provinsiale Administrasie van die Kaap die Goeie Hoop en die Universiteit van Kaapstad gesamentlik te dien.

(c) Die geslaagde kandidaat, wat nie reeds in die hospitaalraadsdiens is nie, moet bevredigende geboorte- en gesondheidssertifikate indien.

4. Kandidate moet minstens drie jaar ondervinding na registrasie as 'n spesialis in Narkose, hê.

5. Aansoek moet gedoen word op die voorgeskrewe vorm (Staf 23) wat verkrygbaar is by die Direkteur van Hospitaaldienste, Posbus 2060, Provinsiale Gebou, Waalstraat, Kaapstad, of by die Takverteenwoordigers van die Hospitaal-departement Kaapstad (Posbus 1487), Port Elizabeth (Posbus 80), Oos-Londen (Posbus 13), Kimberley (Posbus 618) en Umtata (Posbus 202), of by die Mediese Superintendent van enige provinsiale hospitaal of by die Sekretaris van enige skoolraad in die Kaapprovinsie.

6. Die ingevulde aansoekvorms moet gerig word aan die Direkteur van Hospitaaldienste, Posbus 2060, Kaapstad, en moet hom nie later as 30 Desember 1951 bereik nie. Kandidate moet die vroegste datum meld waarop hulle diens kan aanvaar. (Y267943)

Natal Provincial Administration

VACANCIES : VISITING STAFF
ADDINGTON HOSPITAL

Applications are invited for appointment to the undermentioned posts at Addington Hospital:—

(1) Visiting surgeon (orthopaedic). Honorarium £500 per annum plus emoluments £250 p.a.

(2) Assistant visiting orthopaedic surgeon. Honorarium £250 per annum plus emoluments £150 p.a.

Canvassing of members of any Provincial or Hospital Committee will disqualify candidates.

Applications should be addressed to the Director of Provincial Medical and Health Services, P.O. Box 20, Pietermaritzburg, to reach him not later than 30 December 1951.

(AD 6631)

Natal Unity Lodge Oddfellows

TEMPLE STREET, PIETERMARITZBURG

This Lodge requires the services of a Local Medical Officer as one of the Lodge surgeons.

Applications should be addressed to the Permanent Secretary.

Professional Suites To Let

Applications are invited for professional suites being erected in Kotze Street, Hillbrow, Johannesburg. Occupation early 1952. Telephone 22-9182 or write to P.O. Box 5194, Johannesburg.

South African Railways

VACANCY: ASSISTANT RAILWAY HEALTH OFFICER (AVIATION MEDICINE): SOUTH AFRICAN AIRWAYS: GERMISTON

A vacancy exists in the service of this Administration for an Assistant Railway Health Officer (Aviation Medicine), in a full-time capacity, and applications are invited from registered medical practitioners for this appointment.

Applicants should—

(a) have been qualified for a period of at least three years;

(b) have had experience in aviation medicine;

(c) be fully bilingual; under the age of 45 years; be South African citizens, citizens of another Commonwealth country (if so, specify which Commonwealth country) or citizens of the Republic of Ireland; and have resided in the Union or South West Africa for a period of at least three years.

The salary attaching to the position is on the scale £1,120 × 40—£1,200 per annum plus cost-of-living allowance on the scale laid down for Government officials.

Applicants should state their age and give full particulars of their qualifications and experience. On appointment the successful applicant will be subject to the conditions of service governing servants of the Railway Administration.

It will be necessary for the successful candidate to be medically examined before appointment and if he complies with requirements, it will be incumbent upon him to contribute to the Department's Superannuation and Sick Funds at the prescribed rates.

Canvassing by or on behalf of any applicant is liable to disqualify him.

Applications, together with copies of testimonials, should reach the office of the General Manager, Room 115, Railway Headquarters, Johannesburg, before 8 December 1951.

D. H. C. du Plessis
Acting General Manager
(15960)

Suid-Afrikaanse Spoorweë

VAKATURE: ASSISTENT SPOORWEGGESONDHEIDS-AMPTENAAR (LUGVAARTGENEESKUNDE): SUID-AFRIKAANSE LUGDIENS: GERMISTON

Daar bestaan 'n vakature in die diens van hierdie Administrasie vir 'n voltydse assistent-spoorweggesondheidsamptenaar (lugvaartgeneeskunde), en aansoeke vir aanstelling in hierdie betrekking word ingewag van geregistreerde dokters.

Applikante moet—

(a) vir ten minste drie jaar gekwalifiseer wees;

(b) ondervinding in lugvaartgeneeskunde hê;

(c) ten volle tweetalig, onder die ouderdom van 45 jaar, Suid-Afrikaanse burgers, burgers van 'n ander Statebondsland (meld van watter Statebondsland indien van toepassing) of burgers van die Republiek Ierland wees en vir minstens drie jaar in die Unie of in Suidwes-Afrika gewoon het.

Die salaris verbonde aan die pos is volgens die skaal £1,120 × 40—£1,200 per jaar, plus duurtetoeslag volgens die skaal wat op staatsdienare van toepassing is.

Applikante moet besonderhede van hulle ouderdom, kwalifikasies en ervaring verstrek. Die diensvoorwaardes van toepassing op dienare van die Spoorwegadministrasie sal ook op die suksesvolle kandidaat van toepassing wees.

Die suksesvolle applikant moet voor aanstelling deur 'n dokter ondersoek word, en dit is verpligtend dat hy tot die Departement se Superannuasie- en Siekefonds volgens die voorgeskrewe skale bydra, mits hy aan die vereistes voldoen.

Invloedwerwing deur of ten behoewe van 'n applikant stel hom bloot aan diskwalifikasie.

Aansoeke tesame met afskrifte van getuigskrifte moet die kantoor van die Hoofbestuurder, Kamer 115, Spoorweghoofkantoor, Johannesburg, voor 8 Desember 1951 bereik.

D. H. C. du Plessis
Waarn. Hoofbestuurder
(15960)

City of Cape Town

VACANCIES FOR FIVE HOUSE PHYSICIANS

Applications are invited from medical practitioners for the positions of House Physician at the City Infectious Diseases Hospital, Brooklyn Hospital for Chest Diseases and Langa Native Hospital. Appointment to the latter two hospitals is recognized by the South African Medical Council as compulsory 'internship' in terms of the Medical, Dental and Pharmacy Act. The appointment will endure for a period of six months and the salary will be at the rate of £360 per annum less £96 per annum for board-residence, etc., plus temporary cost-of-living allowance. Board-residence will not be provided in respect of the position at Langa Hospital.

The successful applicants will be required to commence duty on 16 January 1952, and those appointed to the City Hospital and Brooklyn Hospital for Chest Diseases will live in the quarters provided at these hospitals.

Applications endorsed 'Medical Appointments', stating age, qualifications, house appointments already held if any, and other experience, accompanied by copies of not more than three recent testimonials, and addressed to the Medical Officer of Health, 12 Keerom Street, Cape Town, will be received up to noon, on 15 December 1951.

M. B. Williams
Town Clerk
City Hall
Cape Town
T.C. 7447

12 November 1951
5398

To Let : Cape Town

Wynberg Main Road. First Floor: Suite of three rooms. Suitable for Doctor or Dentist. Excellent position. Telephone 7-4628, business hours.

Required

Radiologist requires assistantship with view to partnership. 20 years' experience in English Hospitals registered specialist. Therapy and diagnostic. Write to "A. J. H.", P.O. Box 643, Cape Town.

Printed by Cape Times Ltd., Parow, and Published by the Proprietors, THE MEDICAL ASSOCIATION OF SOUTH AFRICA, MEDICAL HOUSE, 35 Wale Street, Cape Town. P.O. Box 643. Telephone 2-6177. Telegrams: 'Medical'